The Harveian Oration.

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MR. PRESIDENT, FELLOWS, AND VISITORS,—It is now 237 years since the illustrious Fellow of this College whose name we are met to commemorate provided, when two years before his death he conveyed his estate at Burmarsh to the College, that: "There shall be once every year a general feast for all the Fellows; and on the day when such feast shall be kept some one person of the said College shall be from time to time appointed by the President and two eldest censors and two eldest elects for the time being of the said College (so that the person so to be appointed be not in that behalf appointed two years together), who shall make an oration publicly, in the said College, wherein shall be a commemoration of all the benefactors of the said College by name, and what in particular they have done for the benefit of the said College, with an exhortation to others to imitate those benefactors, and to contribute their endeavours for the advancement of the Society, according to the example of those benefactors; and with an exhortation to the Fellows and Members of the said College to search and study out the secrets of nature by way of experiment; and also for the honour of the profession to continue in mutual love and affection amongst themselves, without which neither the dignity of the College can be preserved, nor yet particular men receive that benefit by their admission into the College which they might expect; ever remembering that 'concordiâ res parvæ crescunt, discordiâ magnæ dilabuntur.'" It will be seen from this quotation that there is no obligation on the orator to commemorate Harvey alone, or at all, except as one of the many benefactors of the College; and inasmuch as the material benefits of the gifts conferred by Linacre and Caius, by Harvey and Hamey, and by the founders of our College lectures are less valuable than the intellectual gifts which have led Fellows of the College since Harvey's time to search out "the secrets of nature by way of experiment," and still less valuable than the mutual respect and affection amongst ourselves, by which the honour of the profession has been advanced and the dignity of the College preserved, it would be in accordance with my duty to-day to recall to your memory the scientific achievements of Gilbert, of Glisson, or of Willis, of Jurin, of Thomas Young, of Wells, or of Prout, or the more strictly medical labours of Sydenham, or Heberden, or Bright. Nor less worthy of commemoration would be those Fellows who have dignified our community by their literary genius, as Arbuthnot; or by their taste and munificence, as Mead; or by the humanity and simplicity of their character, as Babington, and Watson, and Parkes, and Wilson Fox. The tradition, however, handed down for so many years seemed to be too strong to be broken, and I therefore invite you once more at this Harveian festival to consider some aspects of the work of Harvey.

1. Concerning that immortal discovery, which places him in the limited class represented by Aristotle and Archimedes, Copernicus, Newton and Darwin, it is difficult to say anything that has not been better said already, for again and again its originality and importance, the methods by which it was attained, the steps made by others which led up to it, and the effects which followed have been learnedly and eloquently expounded by my distinguished predecessors. To silence, however, all cavils against the priority of Harvey, it is sufficient to bear in mind the following considerations: 1. If Harvey's doctrine of the circulation was not new, why was it opposed by men in the position of Riolanus and Hoffmann, and welcomed as a discovery by Bartolinus and Schlegel and Descartes? Surely his contemporaries were better judges of the novelty of his views than we are. 2. Admitting that Servetus and Columbus taught the doctrine of the lesser circulation, we need but a moment's thought to convince us that no complete knowledge of this part of the subject was possible until the existence of a systemic circulation was established, for the one is physically impossible without the other. 3. The title of Harvey's great work is not, as it is sometimes quoted, "The Circulation of the Blood," but "De Motu Cordis et Sanguinis." He first showed that the flesh, or parenchyma, of the heart is true muscle, that the heart is not a passive chamber receiving the blood, but a contractile organ expelling it. Until the motive power of the heart was understood there could be no true theory of the circulation.

The fact is that, when we know the true solution of a problem, it is easy to see or think we see it in any discussion which preceded the discovery; for there is only a limited number of answers to most questions, and therefore true as well as false solutions are almost sure to have been proposed. In the writings of Columbus, Servetus, and Cæsalpinus phrases occur which sometimes seem as if the writers were going to state the truth that Harvey first asserted. But it would be as reasonable to infer from such passages that the circulation of the blood was then known as from the lines that Shakespeare places in the mouth of Brutus:

> "As dear to me as are the ruddy drops
> That visit my sad heart."

He only discovers who proves. To hit upon a true conjecture here and there amidst a crowd of untrue, and leave it again without appreciation of its importance, is the sign, not of intelligence, but of frivolity. We are told that of the Seven Wise Men of Greece, one (I believe it was Thales) taught that the sun did not go round the earth, but the earth round the sun, and hence it has been said that Thales anticipated Copernicus—a flagrant example of the fallacy in question. A crowd of idle philosophers arguing through the long summer days and balmy nights of Attica about all things in heaven and earth must sometimes have hit on a true opinion, if only by accident; but Thales, or whoever broached the heliocentric dogma, had no reason for his belief, and showed himself to be not more but less reasonable than his companions. The crude theories and gross absurdities of phrenology are not in the least justified, or even excused, by our present knowledge of cerebral localisation; nor do the baseless speculations of Lamarck and Erasmus Darwin entitle them to be regarded as the forerunners of Erasmus Darwin's illustrious grandson. Up to 1859 impartial and competent men were bound to disbelieve in evolution; after that date, or, at least, as soon as the facts and arguments of Darwin and Wallace had been published, they were equally bound to believe in it. He discovers who proves, and by this test Harvey is the sole and absolute discoverer of the movements of the heart and of the blood. Concerning the methods used by Harvey, they were various, and his discovery, like most great advances in knowledge, was not achieved by one of the happy accidents which figure in story-books, or by a single crucial and never-in-after-ages-except-under-licence-and-special-certificate-to-be-repeated experiment, which some members of a certain Royal Commission have supposed to be the only kind of experiment needed in scientific inquiries. A perusal of Harvey's own statements makes it plain, it seems to me, that, having gained his knowledge of the anatomy of the heart and of the current hypotheses of its function from his Italian masters, he reasoned in the first place that the cardiac valves must be intended for such physiological service as their construction would indicate. He believed that every part of this human microcosm has a meaning; that it is by no chance result of blind forces that an organ is adapted to its end. This great postulate is necessary for scientific progress. If the difficulties of physiology, whether normal or morbid, seem to be so intricate and insuperable that we are tempted to doubt whether the riddle after all has an answer, we must again and again fall back on the faith of Harvey and of Newton, of Boyle and of Linnæus. The great doctrine of natural selection has thrown wonderful light upon the methods by which the results that we see have been reached, but it has not impaired the excellence of those results or their evidence of beneficent design. The application of scientific methods to the study, not only of man as an individual, but of the human race in its social aspects—the science of civilisation in its ethical and political development, this *nova scientia* which was foreseen by Harvey's contemporary, Vico—has so enlarged our conceptions, that we may invert the argument of the Roman orator when he inferred Providence in human affairs from design in human structures: "Est, est profecto illa vis; neque in his corporibus atque in hac imbecillitate nostrâ inest quiddam quod vigeat et sentiat, et non inest in hoc tanto naturæ tam præclaro motû." ("Cicero pro Milone.") Belief, then, that the body, with all its parts, is a machine constructed for certain uses, that everything in nature has a reason and an end: this

was Harvey's postulate when he argued out the functions of the heart and vessels from their anatomical construction. Harvey's second method was that of actual experiment. On this point he leaves us in no doubt. His second chapter is headed: "Ex vivorum dissectione qualis sit cordis motus," and in the introductory chapter which precedes this he says: "Tandem majori indies et disquisitione et diligentiâ usus multa frequenter et varia animalia viva introspiciendo, multis observationibus collatis, et rem attigisse et ex hoc labyrintho me extricatum evasisse, simulque motum et usum cordis et arteriarum quæ desiderabam comperta habuere me existimabam." Many of his vivisections were not, strictly speaking, experiments, but observations—inspection of the living heart and arteries; but others were experiments in the modern and restricted use of the word. These were Harvey's methods, as they must be the methods of all natural science: first, observation; next, reflection; and then experiment. "Do not think; try," was Hunter's advice to Jenner, an advice that is often needed by an acute inquiring genius like his; and still more often by sheer idleness that will never bring its fancies to the test of fact. "Ea autem vera esse vel falsa, sensus nos facere debet certiores, non ratio; αὐτοψία non mentis agitatio."[1] Experiments without hypotheses are often fruitless, but hypotheses which are never brought to the test of experiment are positively mischievous. How far have the Fellows of this College obeyed Harvey's precept and followed his example in "searching out the secrets of nature by way of experiment"? We must, I fear, confess that after the brilliant period of the seventeenth century (in some respects the greatest of our history and certainly the most fruitful in great men) experimental science made slow and uncertain progress, so that between Harvey and Newton, Hook and Grew, Mayow and Boyle, on the one hand, and Cavendish, Black, and Priestley, Hunter and Hewson, on the other, there was nearly a hundred years of stagnation or even of retrogression. Hypotheses and dogmas, misapplied mathematics, imperfect chemistry, and an affected literary style (made more conventional by the practice of writing in a foreign language better fitted for rhetoric than science) contributed to make the eighteenth century singularly barren, in so far as science generally and physiology and medicine in particular are concerned. It is a remarkable fact that Dr. Gregory, of Edinburgh (1753–1821), in his once highly valued "Conspectus Medicinæ," writes thus uncertainly of the ordinary facts of hemiplegia, which had been well known to the ancients:[2] "Fertur, et sane plurimorum jam medicorum observationibus confirmatur, latus adversum ab eo in quo cerebri vitium est sic resolvi."[3] Heberden, it is true, contributed observations which were not unworthy of Sydenham or Hippocrates, but his work, like their own, was purely clinical. It was not until the close of the Great War that scientific medicine made a fresh start. Its progress has since mainly depended upon the application of new methods of observation by the stethoscope, the test tube, the microscope, the clinical thermometer, and the ophthalmoscope. The "way of experiment," in the strict sense of the word, has been hitherto most successfully applied to normal physiology. The successors of Harvey were not Sydenham, Radcliffe, Arbuthnot, Garth, Meade, Freind and Heberden, but Lower, Mayow, Hales, Vierordt, Ludwig, and Chauveau. Pathology as an experimental science is still in its infancy, but the infancy is that of Hercules, and bids fair to strangle such dire pests as anthrax, cholera, tetanus and hydrophobia. Before quitting this part of my subject I would fain correct a popular misconception that Harvey was a neglected genius—that his contemporaries, his professional brethren, and in particular this ancient College refused to listen to his new notions, ridiculed his discoveries, and spoiled his practice. Whether as his fame grew his practice diminished we cannot tell; if so, his patients were the losers. What Harvey cared for and every honest man cares for is not popular applause, but the confidence and esteem of his comrades; and this he deserved and received. It was as lecturer at this College that he propounded his discoveries; it was here that he found his disciples and his friends. Here he was urged to take the presidential chair, and here his statue was erected, five years before his death, with the inscription, "Viro monumentis suis immortali;" whilst the bequests which he left us and this festival in his honour are irrefutable proofs of his affection to his brethren and their veneration for him. It would have been a poor compliment to his elaborate demonstrations, and unworthy of a liberal profession, if so startling a revolution as Harvey proposed had been accepted without inquiry. It was considered, it was discussed, and, without haste but without timidity, it was at last accepted—the very way in which Darwin's theory was received and criticised and adopted by Lyell and by Hooker. Let, then, no scientific impostor or medical charlatan quote Harvey to console himself under merited censure.

2. Of Harvey's writings the second, and by far the longer treatise, is that upon Generation. This formed the subject of a valuable criticism in the Harveian Lecture by the late Sir Arthur Farre. It is full of interest and contains many valuable observations that remain true for all times, as well as many acute criticisms and a few broad and true generalisations, such as the famous dictum—"Omnia animalia ex ovo progigni." Some passages show that Harvey was not without the faculty of humour, which, as Dr. Arnold remarked, few great men have lacked. Such is the account of the accomplished parrot which was Mrs. Harvey's pet, and through a long life maintained the masculine character, until in one unguarded moment she lost it and her life together, by producing an addled egg. Perhaps, however, what most strikes the reader of this treatise is the learning of the writer. He is familiar with Aristotle, and quotes from Fabricius and other writers with much greater freedom than in the succinct and almost sententious treatise "De Motu Cordis et Sanguinis." Some would have us believe that here, as in other cases, erudition was a clog upon genius. This question has been often discussed, and it has even been maintained that he is most likely to search out "the secrets of nature by way of experiment" who comes fresh to the task with his faculties unexhausted by prolonged reading and his judgment uninfluenced by the discoveries of others. This, however, is surely a delusion. Harvey could not have discovered the circulation of the blood had he not been taught all that was previously known of anatomy. True, no progress can be made by mere assimilation of previous knowledge. There must be intelligent curiosity, an observant eye, and intellectual insight. "Doctrina sed vim promovet insitam"; and few things are more deplorable than to see talent and industry occupied in fruitless researches, partially rediscovering what is already fully known, or stubbornly toiling along a road which has long ago been found to lead nowhither. We must then instruct our students to the utmost of our power. Whether they will add to knowledge we cannot tell, but at least they shall not hinder its growth by their ignorance. The strong intellect will absorb and digest all that we place before it, and will thus be all the better fitted for independent research. The less powerful will at least be kept from false discoveries, and will form (what genius itself requires) a competent and appreciative audience. Even the dullest scholars will be respectable from their learning, and, if they cannot make discoveries themselves, can at least enjoy the delight of intelligently admiring the discoveries of others.

3. There is, however, a third phase of Harvey's intellectual work, of which unfortunately the records have perished, and which has not perhaps been duly appreciated. I do not speak of his practice. A file of his "bills," however interesting to the antiquarian, would probably be of as little therapeutical value as those of his contemporaries. Diagnosis, in the modern sense of the word, was scarcely thought of at that time, and treatment was either empirical or mischievous. What I believe Harvey contributed, or would, but for adverse fate, have contributed, to medicine as distinct from physiology, was a systematic study of morbid anatomy. In the following passage he speaks of the great benefit that would ensue from the regular observation of the structural changes produced by disease: "Sicut enim sanorum et boni habitûs corporum dissectio plurimum ad philosophiam et rectam physiologiam facit, ita corporum morbosorum et cachecticorum inspectio potissimum ad pathologiam philosophicam." Now this was a new notion. It was not uncommon for the body to be opened after death, especially in the case of great personages, either for the purpose of embalming or for discovering (as it was supposed) the fact of poison or other foul play; and occasionally a physician would obtain permission for a like inspection when something unusual in the symptoms had excited a laudable curiosity to ascertain the cause; but the records of such inspections in the seventeenth century by Bartolinus, or Tulpius, or Bonetus, or, in our own country, by Mayerne, or Bate, or Morton, are fragmentary, their object being limited to the individual case. There was no attempt to search out the secrets of nature in disease by a systematic

[1] Harvey's Second Epistle to Riolanus, p. 133. (College edition.)
[2] Aretæus de Causis et Signis Morborum Chronicorum, lib. i., cap. vii.
[3] Chapter xii., section 382.

observation of the state of the organs after death, nor was there for more than a century after Harvey's death. Morgani[4] in Italy; the French anatomists of the early part of this century—Corvisart and Laennec, Broussais and Cruveilhier; in Germany, Meckel and Rokitansky; and in England, Baillie, Abercrombie, Carswell and Bright—these were the founders of scientific pathology on a sure anatomical basis almost within living memory. Not only had Harvey the prescience to recommend the study of morbid anatomy for itself, but he had himself carried it out by recording a large number of dissections—or, as we should now call them, inspections—of diseased bodies. Unfortunately these post-mortem reports, with his observations on the generation of insects, together with other manuscripts, were destroyed or irrevocably dispersed when his house in London was searched whilst he was with the King at Oxford. If the records of these inspections had been published, may we not assume that Harvey's great authority would have set the fashion, and that the systematic study of morbid anatomy would have begun a century and a half earlier than it did? And think what this would have meant. With the exception of a few shrewd observations, a few admirable descriptions, and here and there a brilliant discovery—such as the origin and prevention of lead colic and of scurvy, and the introduction of vaccination—it may be said that medicine made no important progress between the time of Harvey and that of Laennec. The very notion of diagnosis in the modern sense of the word depends upon morbid anatomy. The older physicians seldom attempted to determine the seat of an ailment. Disease was looked upon, not as a condition depending upon disordered physiological functions, but as something external, attacking a previously healthy person, disturbing, and, if not expelled by art, finally destroying him; whilst any structural changes which were found after death were regarded rather as the effects than the causes of the symptoms during life. Now, the ambition of every intelligent student—and in medicine we are life-long students—is to fix upon the most objective, certain and important of the symptoms of a patient, to follow this clue, and to determine the organ affected and the nature of the affection, so that in his mind's eye the tissues become transparent and he sees the narrow orifice for the blood-stream and the labouring muscle behind it; or the constricted loop of intestine with violent peristalsis above and paralysis below, the blood current stopped, and congestion passing hour by hour into gangrene; or the spinal cord with grey induration of a definite region, and the motor, sensory, and trophic changes which physiologically ensue. Sometimes this minute search to fix upon the locality and exact nature of a lesion has been ridiculed, and we are asked what benefit to the patient such knowledge when attained can bring. We answer that in medicine, as in every other practical art, progress depends upon knowledge, and knowledge must be pursued for its own sake, without continually looking about for its practical application. Harvey's great discovery (which we physicians rightly celebrate this day) was a strictly physiological discovery and had but little influence upon the healing art until the invention of auscultation. So also Du Bois-Reymond's investigation of the electrical properties of muscle and nerve was purely scientific, but we use the results thus obtained every day in the diagnosis of disease, in its successful treatment, and in the scarcely less important demonstration of the falsehoods by which the name of electricity is misused for the purposes of gain. It is true that Bernard's discoveries of the diabetic puncture and of the digestive function of the pancreas have not yet received their practical application. He was right when he said, "Nous venons les mains vides, mais la bouche pleine d'espérances légitimes," but he should have spoken for himself alone. The experiments on blood-pressure begun by Hales, and carried to a successful issue in our own time by Ludwig, have led to knowledge which we use every day by the bedside, and which only needs the discovery of a better method of measuring blood-pressure during life to become one of our foremost and most practical aids in treatment. Again, we can most of us remember using very imperfect physiological knowledge to fix, more or less successfully, the locality of an organic lesion in the brain. I also remember such attempts being described as a mere scientific game, which could only be won after the player was beaten, since when the accuracy of diagnosis was established its object was already lost; but who would say this now, when purely physiological research and purely diagnostic success have led to one of the most brilliant achievements of practical medicine—the operative treatment of organic diseases of the brain? Morbid anatomy not only teaches us what lesions we have to discover, but also their true pathological relation. We learn that every disease does not affect every part of the body. If we make a horizontal list of all the organs and tissues, and a vertical one of all the known morbid changes, according to Rokitansky's laborious and thorough-going method, we find the table almost useless, since the blanks are more numerous than the entries. If the liver, for example, were the possible seat of every tumour described in our College nomenclature of disease it would be hopeless to attempt the diagnosis of a hepatic growth; if the small intestine were subject to every morbid change which can affect a mucous membrane we should be lost amidst such a crowd of possibilities. But morbid anatomy teaches us that each organ has its peculiar liabilities to disease, so that when we have determined the seat of a malady we have gone far towards establishing its nature. Moreover, such concomitant variations as hypertrophied left ventricle and granular kidneys, basal meningitis and caseous lymph glands, visceral abscesses and ulceration of the cardiac valves teach us much more than anatomy or diagnosis. They throw a clear light upon the nature and the origin of diseases, and hence upon their prevention and cure. True, there are functional disorders and others which are toxic or parasitic; but it is the object of the study of morbid anatomy to limit and, as nearly as may be, to abolish the former group by tracing disordered functions to structural changes or to poisonous or parasitic influences. We may measure the progress of medical science during the present century by the fact that fever, dropsy, paralysis, and apoplexy are for us no longer diseases but only symptoms which leave us unsatisfied till we have traced them to their origin. It has often been questioned whether the study of morbid anatomy has not withdrawn attention from morbid physiology; and, again, whether the time employed upon pathological researches would not have been better spent in direct therapeutical inquiry. To both these questions I take leave to answer, No. Anatomy must precede physiology, whether in the normal or the diseased state. The humoral physiology of the ancients did infinite mischief (mischief not yet exhausted), because it lacked the sound basis of anatomy; and experimental pathology, necessary and important as it is, and valuable as even its first endeavours have proved, was impossible without previous knowledge of the anatomy and histology of disease. As to therapeutics, whilst professing full faith in the ultimate value of such laborious chemical and physiological researches of the laboratory as those which were the subject of the recent Croonian Lectures, I hold that for the successful cure of a patient it is far better that his physician should have a thorough and extensive knowledge of morbid anatomy than that he should be acquainted with all the baths and waters, the hotels and lodging-houses throughout the world, or familiar with the barbarous names and pretended virtues of all the advertised nostrums that deface the fair English fields from London to Oxford. The public suppose that it is their business to know what is the matter, and the physician's to find the remedy; if so, our art would be confined to learning the name of the patient's disorder by letter, postcard, or telegram and looking up in an index of remedies the twenty or thirty drugs which are "good" for that particular complaint. We know that the real difficulty is to ascertain the nature and origin of our patient's disorder. When that is done the treatment in most cases is obvious, and in many effectual; when it is not done, our treatment is vacillating, and is either futile or mischievous. We have already ample means at our disposal for influencing almost every organ of the body. A new tool is occasionally offered us which deserves proving, but what we want far more is knowledge how to use the tools that we have. Treatment without diagnosis, besides its inefficiency, brings us for the time unpleasantly near to the charlatan, who, whatever title he may assume, is always therapeutical and never pathological. Rational, bold and effectual treatment, whether preventive or curative, must always depend upon accurate diagnosis and sound pathology; and the power of diagnosis depends upon that systematic inspection of the bodies of diseased persons which was recommended and practised by Harvey. "Ad hanc inspectionem, cum Heraclito apud Aristotelem, in casam furnariam (sic dicam) introire si vultis, accedite: nam neque hic Dii desunt immortales. Maximusque omnipotens Pater in minimis et conspectior vilioribus

[4] John Baptist Morgani died at Bologna in 1771, but his great work, De Sedibus et Causis Morborum, was only published in 1780.

quandoque est." Suffer me, then, Mr. President and Fellows of this College, to obey the instructions of the founder of this lecture by exhorting my hearers, and especially those Fellows who are junior to myself, to emulate, according to the varied talents entrusted to each, the example of Harvey in these three particulars:—

1. In investigation by experiment, whether in pathology or physiology. We have now difficulties unknown to Harvey in carrying out this duty, for duty it certainly is, and incumbent upon all who have the opportunity and the necessary training. The countless experiments on living animals which were carried out during the seventeenth century in all civilised countries—in Italy, Holland, Denmark, France, Germany, and England—bore a rich fruit of physiological knowledge. If the anatomy of the human body was thoroughly ascertained by the great men of the sixteenth century, by Vesalius, Sylvius, and their successors, it is no less true that to the seventeenth century is due the discovery of the elements of physiology. The action of the heart and the circulation of the blood, the absorption of chyle by the lacteals and thoracic duct, the mechanism of respiration and some knowledge of its chemical effects, the function of secretion by glands, the minute structure of the eye and ear, and of the reproductive apparatus, and a knowledge—imperfect, but true as far as it went—of the functions of the brain and nerves: these were the achievements of the seventeenth century due to Harvey, Glisson, Willis, and Mayow, amongst our own countrymen, and to Pecquet, Malpighi, Leuwenhoeck, De Graaf, Swammerdam, Aselli, Redi, and Bartolinus. In all this brilliant advance of knowledge, experiment upon the lower animals was the method used, and the method is as indispensable now. Anyone conversant with a single branch of natural science is aware that experiment, as well as observation, is necessary. Who would expect discoveries in physics or in chemistry without laboratories and experiments? Do not botanists investigate the functions of plants by dissection, by microscopic and chemical investigation, and by experiment? Have we not this very year celebrated the important results of fifty years' experimental researches into the life and growth of plants by Lawes and Gilbert? And is it not obvious that the same necessary, well-tried and indispensable method of inquiry must be continued in the case of animals? Happily the same experimental science has discovered the means of abolishing the tribute of suffering which the brute creation paid in the hands of Harvey and Hales, of Haller, Magendie, and Sir Charles Bell. By means of chloroform and other anæsthetics, and by means of the antiseptic methods which we owe to Sir Joseph Lister, the subjects of experiment are spared the pain and shock of an operation and the pain which used to follow an operation. In fact, almost the only experiments upon the lower animals which involve distress are those which are most immediately and directly useful to ourselves and to them—namely, inoculations with a view to reproduce diseases and the direct therapeutical testing of drugs. Cruelty is utterly repugnant to our calling; and it seems absurd that men, who will with just confidence entrust themselves and the lives of those nearest to them to our protection and care, should yet so far distrust us as to shackle attempts to improve our knowledge and our power by cumbersome and ridiculous restrictions. Let us hope that, on the one hand, increasing humanity and gentler manners will extend compassion for the lowest of God's creatures from the educated classes of England and America until it permeates all ranks and all nations; and that, on the other hand, full liberty will be given to the prosecution of researches, laborious and thankless in themselves, but of the utmost value for the relief and prevention of disease in man and brute alike. May I also express a hope that those who administer our laws will take heart of grace, and in this, as in other matters, try whether Englishmen do not prefer the conscientious maintenance of a statesman's own judgment before a time-serving subservience to ignorant clamour.

2. In the second place I would exhort my brethren, and especially the Members of this College, to cultivate learning. Harvey went to study in Italy, then the nursery of science as well as of art, and he was familiar with the writings of Plato and Aristotle and Virgil, as well as with those of his immediate predecessors, Fabricius and Columbus. So in that golden time which comes to most of us, between taking the academical degree and becoming immersed in the daily duties of hospital life, I would strongly advise a visit to one of the German universities or to Paris, to acquire the key to the two languages in which the best modern books are written, and to widen the mind by seeing the aspect of science and affairs from a continental standpoint. It is lamentable that there is so little professional intercourse between the students of one of our London schools and the teachers of another. The laudable energy which has made each of them complete and well-equipped colleges has had this drawback, that at the present day the attention of a diligent student is more confined to the teaching and practice of his own school than it was sixty or seventy years ago. The narrowness and prejudice bred by this isolation may be corrected by a visit to the famous sister universities of Edinburgh or Dublin; whilst for their complete removal no prescription is so efficient as a prolonged stay in continental laboratories and hospitals. But even such a broad and liberal education—even familiarity with the daily advances of medical science recorded in periodicals and archives and year-books, or transmitted by telegraph to the wondering readers of the daily newspapers—is not all that is needful to make a learned physician. We know well the difference between reading of an experiment, or even seeing it performed, and doing it with our own hands. We know the difference between studying a pathological atlas, or even a cabinet of histological slides, and seeing and handling morbid tissues and making sections for oneself. So also is there all the difference between learning the present conclusions as they stand recorded in the last edition of a text-book or compendium, and tracing the steps by which our present knowledge has been reached. With regard, for instance, to the physiology of the circulation, it is not only curious but instructive to follow its gradual growth from Galen and Vesalius, Columbus, Cæsalpinus and Servetus to Harvey and Lower and Malpighi, to Hales and Vierordt, to Ludwig, and Chauveau, and Gaskell, and Roy. The only true scientific method is the historical one. If we only know the results of a science without the steps by which they have been reached we have indeed its practical use, but lose half its educational value. We are almost in the position of an engineer who knows the conclusions of trigonometry by rote, but is ignorant of the demonstration. I would therefore urge upon junior Fellows, whilst still enjoying the prospect rather than the fruition of professional success, to spare some of the time which is unoccupied by work in wards and laboratories, for the perusal of antiquated works published as much as twenty years ago, and particularly for gaining acquaintance at first hand with classics like Virchow's "Cellular Pathology" and the lectures of Watson, Trousseau, and Stokes; or, if their time and inclination does not allow of more extended researches, at least to read such succinct masterpieces as Laennec's "Mediate Auscultation," Heberden's "Commentaries," Sydenham's "Treatise on Gout," and Harvey on the "Movement of the Heart and of the Blood."

3. I would, moreover, exhort Fellows of the College to see that, whilst all the new methods of experimental pathology and of pharmacology are carried out by duly trained physiologists, we do not neglect the fundamental method taught and practised by Harvey of inspecting the bodies of those who have died of disease. It was this union of morbid anatomy with clinical observation which made the discoveries of Laennec and of Bright really fruitful. Without these necropsies clinical medicine is but an empirical art, diagnosis a sham, and treatment little better than quackery. Exclusive attention to therapeutics is apt to bring a man dangerously near to homœopathy and other pretended systems of treatment; but sound pathology and diagnosis, controlled by post-mortem inspection, give positive knowledge and that union of modest self-confidence and prudent enterprise which become the physician.

Lastly, I have to fulfil the duty of exhorting the Fellows of this ancient College "to continue in mutual love and affection" amongst ourselves, and this is the easiest task of all. For if we must admit that experimental science in England, and particularly scientific pathology, is not surpassing our bygone achievements as it ought to surpass them, considering the increased number of competent labourers and the vastly improved methods of research; and if we admit that the abundance of books and the distractions which we fondly imagine to be peculiar to our generation leave small opportunity for the extension and cultivation of ancient learning; and if the fascination of pharmacology and therapeutics and the prejudices of our patients, both gentle and simple, still make post-mortem inspections less common and systematic than they should be: whatever, I say, may be our shortcomings in these or in other respects, your Harveian orator may most honestly congratulate the College and

the profession upon the concord and mutual esteem which have happily marked our history, from the days of Linacre to those of Harvey, from the days of Arbuthnot and Garth to those of Meade and Freind, from the days of Fothergill and Heberden to those of Matthew Bailie, of Babington and of Sir Thomas Watson. Nor is it here alone that we may congratulate ourselves upon the liberal and cordial feelings which happily prevail. The same may, I believe, be said of our sister College, with which we are so happily united, not only in the necessary duties of examination, but in the nobler union of joint endeavours to search out the secrets of nature by way of experiment. Long may this continue, for upon its continuance rests not only the dignity and peace of our profession, but in great measure our power of doing good. However ignorantly our patients will sometimes decry what they call "professional etiquette," the wiser amongst them know (and in the long run the wise lead the foolish) that this term really means the observance of those rules which distinguish a profession from a trade, which make our calling honourable as well as honest, which check the arts of advertisement, and direct our ambitions to obtaining the suffrages, not of the public, which *cannot*, but of our profession which *can*, judge truly—rules of conduct which are, in fact, nothing but the carrying into daily practice of the golden rule to do to others as we would they should do to us. For maintaining and strengthening this spirit of concord and good feeling we depend upon each one of our Fellows, but especially on the example and authority of our head—an example and authority which, as the College well knows, are worthily maintained by the untiring devotion to its best interests of our honoured President.

Abstracts
OF
INTRODUCTORY ADDRESSES
DELIVERED AT
VARIOUS MEDICAL SCHOOLS
AT THE
Opening of the Session 1893-94.

ANDERSON'S COLLEGE MEDICAL SCHOOL, GLASGOW.

INTRODUCTORY ADDRESS BY MR. THOMAS KING, PROFESSOR OF BOTANY.

The Early History of Botany in Britain.

THE lecturer commenced by remarking that: "In studying botany we generally begin with the science as it is to-day without inquiring into its condition in former times. In other words, we do not study the subject historically and so learn the results of what has already been done whilst we neglect to inquire into the processes by which these results have been obtained. ..... Botany did not originate in Britain, so in order to obtain an intelligent view of its rise and progress in our own country we must know something of its earlier history abroad, and that may be summarised in a few words: From the earliest times men must have been familiar with many plants, especially with such as were useful or the reverse, as food plants and troublesome weeds. Hence many sorts are mentioned in the most ancient literature; but the earliest writings avowedly on plants that have come down to us are those of Hippocrates, who lived 400 B.C. He was a medical man and records the uses of 240 plants. Contemporary with him was Theophrastus, who gives a more general view of the vegetable kingdom, treating of shrubs, roses, potherbs, grains, timber &c., chiefly from an economic view point. Dioscorides lived about the Christian era and wrote a famous materia medica, the greater part of which is taken up with plants. Pliny, who was killed by an eruption of Vesuvius, A.D. 79, gathered up into his Natural History the opinions of the ancient world regarding both plants and animals. Galen also wrote on plants, but his book is not considered of much importance botanically. Next followed the Dark Ages, when little original investigation was attempted, as scholars seem to have been content with such books as they had and went on using Dioscorides and Galen." Then came "the Reformation, when scholars were no longer content to accept opinions on the authority of others but studied and investigated for themselves, and this mental activity made its mark on all branches of knowledge, botany amongst the rest. The earliest botanists of this revival period were Germans—Otto Brunfels, Fuchs, Bock and others." Coming to the history of the science in Britain, the lecturer spoke of the father of British botany, William Turner, physician, naturalist, and clergyman. Turner was born at Morpeth about the year 1500, and appears to have been the author of the first work on British plants, and this was published in three parts. The next author to be mentioned is Matthias Lobel in honour of whom the lobelia is named. He was a Fleming by birth, but lived long in England and published an important botanical work in London. In 1570, two years after the death of Turner, he published in Latin his "Adversaria" or notes on plants. He was the first to group together plants naturally, and succeeded well with some, such as the leguminosæ and the umbelliferæ, but badly with others, the compositæ, for instance, which crop up all over the book. The next English botanist of note was Gerard. After the publication of "Turner's Herbal" in 1568 the knowledge of plants increased so fast that by the end of the century Turner was out of date and Lobel being in Latin had never become popular. There was clearly room for a new herbal and Gerard wrote one superior to any that had yet appeared in England. John Gerard was born in 1545, and died in 1607. He was a master of the Apothecaries' Company and owner of the first physic garden in England—what would now be called a botanic garden. His "Herbal" is a profusely illustrated folio of 1400 pages and treats of all, or nearly all, the plants, both native and exotic, that Gerard knew. It is a very amusing book and of great interest in many ways. Gerard is said to have been the first to cultivate the potato in England. He gives a figure of the plant. This famous "Herbal" held its place for the next hundred years. Of course during that period many botanical works were published, and of these mention may be made of a few that form starting points in the history of British botany. Thomas Johnson, a London apothecary, was in the habit of going occasionally to the country in company with a few friends of similar tastes to look for plants, and in 1629 he wrote an account of one of their visits to Kent. So far as is known this is the earliest account we have of a botanical excursion in England. He also published three years afterwards what may be called our earliest local flora, which may be regarded as the forerunner of such books as the "Clydesdale Flora," by Professor Kennedy. Johnson's greatest work was the bringing out of a second edition of "Gerard's Herbal," so much enlarged and improved as to be almost a new work. Parkinson, another London apothecary, contemporary with Johnson, was our earliest writer on gardens, and from him can still be learned what flowers, fruits, and vegetables were cultivated in England about 1630. Up to the beginning of the seventeenth century botany was rather a narrow science, being chiefly occupied with the naming and describing of plants and the enumerating of their medicinal properties. It was a combination of descriptive and medical botany, whilst little or no attention was given to the classification, the anatomy or the physiology of plants. Turner, as before stated, arranged the plants of his "Herbal" alphabetically by their Latin names. Gerard made three heterogeneous groups not arranged on any one principle. Lobel grouped plants by their general appearance—by their habit, as botanists say—but gave no characters by which the groups might be marked off from one another. However, before Lobel's death, the Italian naturalist Cesalpino had already laid the foundation of a scientific classification of the vegetable kingdom. He arranged plants into fifteen classes, taking the characteristic marks from the fruit and seed. The scheme is disappointing but, as Sachs says of it in his "History of Botany" (English translation), it is "the first plan proposed for a systematic arrangement of the vegetable kingdom with characters for each division." Cesalpino was hampered by the prevailing philosophy of the time. Instead of carefully examining natural objects and then forming a theory, investigators forced facts into argument with preconceived notions. For example, it was held that plants and animals were formed on the same plan, hence the root of a plant corresponded to the mouth of an animal; but as the mouth of an animal is in the upper part of its body so the root, though buried in the soil, must be regarded as the upper part of a

plant. Cesalpino's opinions about the principle of life in plants were influenced by the same philosophy. The next in order of time was Robert Morison, who was born at Aberdeen in 1620. He took his doctor's degree in France, studied botany, and the Duke of Orleans appointed him superintendent of his garden at Blois, and in 1669 he became Professor of Botany in Oxford. He wrote a good deal, but is chiefly remembered by his classification, which, though very imperfect, is an improvement on that of Cesalpino. He uses as the basis of his system the fruit and the habit of the plant, having such groups as climbing plants, leguminosæ umbelliferæ &c. He also wrote the first monograph on any natural order—"The Umbelliferæ." It is a work of much merit. Contemporary with Morison was John Ray, born at Black Notley, Essex, in 1628—that is, eight years after Morison, and in the same year as John Bunyan. His father was a blacksmith, but he sent his son to Cambridge, where he soon became Lecturer on Greek and Mathematics in Trinity College. For the purposes of study he travelled a good deal; but in 1679 he finally settled in his native place, Black Notley, where he died in 1706, aged seventy-seven, a poor scholar respected by all who knew him. He was a voluminous writer on animals and plants, one of his works being "Historia Plantarum," in three great volumes, containing a description of all plants then known. But what is of chief interest in this connexion is Ray's contribution to systematic botany. His classification is a great advance on that of Cesalpino and Morison. He first divides plants into flowerless and flowering; then the flowering into dicotyledons and monocotyledons; and these, again, into natural orders. We have here the skeleton of the natural system as at present constituted, though much still remained to be done. Dr Pultney, in his "History of Botany," 1790, says: "Miller was the only person I ever knew who remembered to have seen Ray. I shall not easily forget the pleasure that enlightened his countenance when, in speaking of that revered man, he related to me that incident of his youth." In the first half of our own century a society was formed for the purpose of publishing valuable works on natural history, but for which there would not be any great public demand; and this society was named in honour of the great naturalist the "Ray Society." Its annual publications now form a library. Contemporary with Morison and Ray was Nehemiah Grew, M.D., F.R.S., born probably in the same year as Ray (1623). Grew was the first in Britain to study the anatomy of plants. Hooke had greatly improved the microscope about 1660, and Grew made excellent use of it in the examination of the minute structure of roots, stems &c. But Malpighi in Italy was studying the same things at the same time, and both made similar discoveries, so there have naturally been disputes as to priority. Grew's "Anatomie of Plants," published in 1682, is a folio illustrated with beautiful copper-plate engravings of sections of wood &c as seen under the microscope, and so accurate are they that they may be examined with profit at the same time. In this same book we have the first recorded statement as to the function of the pollen of flowers. Here is part of the famous passage: "The primary and chief use (of the dust of the apices) is such as has respect to the plant itself and so appears to be very great and necessary. ..... In discourse hereof with our learned Savilian Professor, Sir Thomas Millington, he told me that he conceived that the attire (stamens) doth serve as the male for the generation of the seed. I immediately replied that I was of the same opinion and gave him some reasons for it and answered some objections that might oppose them." Here we have the first page of that great library of botanical literature that has been written on the sexes of plants, including cross and self-fertilisation. Unfortunately the book is now scarce. It seems likely that there were at one time many copies on the Continent, where there was little demand for them, so they were shipped to England; but the ship was wrecked and all the books lost. Grew himself died in 1711, five years after Ray. The lecturer concluded as follows: "I have thus, gentlemen, traced the history of botany in England from its rise in the middle of the sixteenth century down to the beginning of the eighteenth, and from what I have said you will gather that in addition to the study of the science in its present condition I recommend also the study of its development. And now a word in conclusion regarding botany as a branch of medical study. Students think, probably with some reason, that they have to learn too many things; that botany is of little use and so might be dispensed with. But in this, I think, they are wrong. Surely, a medical man should know about that kingdom of nature from which we obtain, directly or indirectly, all our food and many of our medicines. A knowledge of the different natural orders of plants is of great importance as certain orders possess certain properties. Surely, it is a suggestive thing that such strong food-stuffs as beans, peas, and lentils are all produced by one order—the leguminosæ; and that henbane, deadly nightshade, and tobacco are all produced by another—the solanaceæ. Again, we cannot possess a comprehensive knowledge of physiology if we ignore the physiology of plants. From them we get our clearest notions of the cells; and those minute organisms to which so much attention has of late been directed—the bacteria—are members of the vegetable kingdom; and as a recreative science for yourselves none is superior to botany, which takes its votaries to the seashore, the fields, the woods, and the hills.

UNIVERSITY COLLEGE, DUNDEE.

INTRODUCTORY ADDRESS BY PROFESSOR PATERSON.

PROFESSOR PATERSON began by recalling to his hearers some of the phases through which the college had passed since its foundation. "Five years ago," he said, "when I last had the honour of addressing an audience like this in Dundee, as a stranger who had just been taken into the fold, my only course was to give expression to hopes and aspirations; to-day, with more intimate knowledge of the situation, and some experience of the inner workings of the institution, I feel I can speak with fuller confidence not only of the past but also of the future of the college and the medical school. The establishment of a college in Dundee was avowedly an experiment: an experiment which, from its very pluck and hardihood, deserved success and had gained it, though not without going through a period of somewhat anxious trial. Founded in an alien soil, it might have been called a conservatory of exotics. We were the exotics: the orchids and chrysanthemums, carefully selected and planted by the council, and cenderly watered and cared for by the generosity of the community." He then referred to the generosity of prominent citizens of Dundee through whom it had come about that during the ten years of the college's existence the number of professorships had been doubled, and the provision for teaching had so improved that to-day only the topmost rungs in the ladder of education were wanting, and these he believed would be added at an early date. This would be the more easily managed, as he pointed out, because the constitution of the college had been fortunately drawn up on wide lines; therefore, he said, it had been able to mould itself readily to the needs of the district and the spirit of the age. The basis of "literature, science, and the fine arts" was broad enough to enable the authorities to enter on a new departure at any time and in almost any desired direction. It was evidence of the highest wisdom on the part of the council that they had embraced so willingly the schemes which had from time to time been advocated for enhancing the utility of the institution on these lines, and particularly the projects for the association of the Technical Institute with the College and for the establishment of a medical school. Both schemes entailed enormous difficulties, great labour, and vast expenditure; at the same time, both were perfectly natural developments. The natural history of such institutions as that one showed that those departments of study necessarily flourished first and best which were most closely connected with the needs of the surrounding district, and that those would mature and succeed later which lay further away from the activities of the people and the heart of the community. In a natural process of evolution, after secondary education had been completely organised, the first demand in a large industrial community was for technical education—first on the lines followed by the Technical Institute, afterwards by the institution of a medical school, a law school, and a training college for teachers, and later by the less strictly utilitarian faculties of a university. Professor Paterson repudiated the suggestion that he was taking too low a ground in classing the medical curriculum with technical education, more properly and accurately so called, and adduced in support of his views the general Scotch University system as it exists to-day. "The Scottish universities are," he said, "in a sense huge technical schools. A Scottish student avowedly makes his university training a means to a definite end. As a rule he aims at becoming a member of one of the professions—law, the Church,

medicine, engineering, journalism, teaching, &c.; and his training is in almost all cases a technical one from the beginning." He further pointed out that of these academic pursuits the one most fitted to bring a man into close touch with the deepest problems of life was obviously medicine. He then sketched the history of the foundation of the Dundee Medical School, instancing as the two recent events most certain to have a vital and fundamental effect upon its future growth and development the alliance of the Dundee College with the University of St. Andrews and the purchase of the Barrack Park site with a view to future building projects; but, whilst the progress, thus and in other ways displayed, inspired him with great hopes for the future, he reminded his hearers that there remained yet more than one problem for solution; and of these the one he selected for special consideration was the position of women as members of the medical profession. "As an educational question, 'What are we to do with our surplus girls?' is an important one," he said, "and in medical centres there is at the present time a threatened invasion of haunts and paths of study which have hitherto been trodden by male feet alone. It is not my province to inquire what the demand may be on the part of the public for female surgeons and physicians; it is enough that woman has made up her mind to become a doctor. Our university has thrown open its doors to women for graduation in medicine, and the constitution of this college requires that women shall have equal facilities with men for the acquisition of knowledge within its walls. It is true that the project of a medical school was, so to speak, a graft upon the parent stem. Notwithstanding that, if female buds appear upon this bough, they must be allowed to blossom and fructify at least on equal terms with the hardier male blooms. The problem before us is, What special provision (if any) must be made for their tuition in the event of women coming forward for instruction in medical subjects?" Professor Paterson then proceeded to answer this question by elaborate reference to the census returns, from an analysis of which he deduced his belief that the number of women in Scotland capable of attempting the task of entrance into the medical profession is extremely small at the present time, certainly not sufficient to warrant the Dundee school in incurring expenditure or in making any alterations in their arrangements to provide special facilities for meeting what is probably an ephemeral fashion or a passing phase in female educational history. But if the movement gathered strength he advocated strongly that women should obtain their instruction in separate classes and hospitals, or in schools of their own, which he considered had been proved to be a successful method by the results of its adoption in London and Edinburgh. From the consideration of female competition to a discussion of the familiar theory that the medical profession is overcrowded was a natural step. "No doubt," he said, "you are already familiar with the statement that the profession is overcrowded. You may have heard the tale from your medical man. He possibly told you what he thought of you for seeking to join a profession so overworked, underpaid, and undervalued. Gentlemen, that cry is unworthy of your doctor, who, I am sure, is a man of the highest ability and keenest acumen. He does not find the profession overcrowded. That cry comes out of the depths of the profession. Whilst I would be the last to suggest such a career for a man without capacity, intellectual and physical, for real hard work, yet there is no doubt in my mind that there is always room in medicine for a good man. 'There are always vacancies at the top.' There is a story of a camel that forced its way into the tent of an officer in Egypt, in spite of his expostulation that there was 'only room for one'; there was only room for one, but that one was the camel, for the officer was forced to creep out ignominiously from under cover of the tent, leaving the camel in sole possession. This story is particularly applicable to a medical career. A man possessing the necessary attributes for success—charity, culture, and common-sense—need have no fear of being crowded out." In conclusion, Professor Paterson expounded the curriculum of education provided by the Dundee Medical School for the students and regretted that for the present, until the foundation of the more important chairs of Medicine, Surgery, and Midwifery, it would be necessary that their third and fourth years of study should be spent elsewhere. "Whilst, however," he said, "we regret that it is your lot to pass away and complete your curriculum in other schools, we remind you that by that means others are able to see what kind of men we are turning out. Whilst you are here we trust that you may spend your time with profit to yourselves, and when you leave us we place in your hands the honour of the Dundee Medical School. We look to you to do your best whilst you are with us, and when you leave us, by your manly conduct and successes as students, and by your worth as practitioners, to reflect credit on yourselves, your teachers, and your school."

THE MASON COLLEGE, BIRMINGHAM.

INTRODUCTORY ADDRESS BY DR. R. C. JEBB, LITT.D., M.P., REGIUS PROFESSOR OF GREEK IN THE UNIVERSITY OF CAMBRIDGE.

PROFESSOR JEBB began by pointing to the change that has taken place during the last century in the position of classical study. "At the beginning of the century," he said, "classical studies, as pursued in our schools and universities, rested on a tradition dating from the sixteenth century which had never been effectively challenged, even by those whom it failed to satisfy; and yet the humanities, salutary as their influence had been in the higher education, powerful as they had been in helping to shape individual minds and characters, did not then possess much hold on the literary and intellectual life of the country at large. At the present day, on the other hand, the classics share the domain of liberal culture with a large number of other subjects whose importance is universally recognised; controversies have raged around them; but at any rate, wherever classical studies are carried to an advanced point, the students can now give good reasons for their faith." He then briefly traced the process by which this change of attitude had come about, attributing it largely to the critical work of Lessing and Winckelman and the influence of Goethe, working successfully against the enormous popularity of the Romantic school, with Sir Walter Scott as its English leader. "Scott," he said, "remains the most signal embodiment in our literature of the romantic, as contrasted with the classical, tendency. Then came Byron, a force too individual and too volcanic to be described under the name of a school, but making, on the whole, for romanticism, identified with Greece, and masterly in his description of its natural beauties, but not in harmony with the mind of its ancient people. But Shelley, as might have been expected, was keenly alive to the beauty of Greek literature; he translated Plato's "Symposium," and a blending of Plato with Dante may be felt in his "Epipsychidion"; though, when he followed the outlines of Greek form, as in the "Prometheus Unbound" and the "Adonais," he wholly transmuted the spirit of his models. Keats, again, was in much a Greek by instinct, though his style was usually less classical than romantic. Walter Savage Landor, born seventeen years before Shelley and twenty before Keats, continued to be active long after those short lives were closed; in his exquisite prose he was a conscious artist, working in the spirit of the classical masters. But these men, and such as these, appealed in their own day to only a few. A new current set in soon after the middle of the century, when a more living interest in classical antiquity began to be felt, outside scholastic and academic circles, by the cultivated portion of the English public generally. It was in the province of history, I think, rather than of literature, that this new current first became perceptible. Dr. Arnold, in his teaching at Rugby, had already prepared for it amongst a select few; but if one were to specify any single book as marking the commencement of its wider influence one might perhaps name Grote's History of Greece. Grote had the advantage—not a small one for this purpose—of being not only a scholar but a man of affairs; the British public was the better inclined to him on that account; and one of his achievements, due especially to his treatment of Athens, was to invest ancient Greece with a modern interest. Meanwhile purely literary forces were tending to create a more appreciative sympathy with classical literature. Amongst these the foremost place must be given to the influence of Tennyson—not only when it is direct, as in the series of his poems on classical themes, but as it operates generally by his artistic perfection of form, which is always in spirit classical. In this large sense he has been, for our age, the most powerful poetical mediator between the antique masters and the English-speaking world. And there is another poet—one whom those who love him will not fear to call great—whose effectiveness in this way can be deemed second only to the

late Laureate's—I mean Matthew Arnold. His influence, inevitably less popular, quickened the perceptions of a comparatively limited public, yet one which included not a few of those by whom literary opinion is gradually moulded. Robert Browning had less of native sympathy with the classical spirit than was shown by his gifted wife in her poem 'The Great God Pan'; his normal style is far from classical; but his marvellous wealth of poetical thought is seen in 'Balaustion's Adventure,' the new garb in which he has clothed the 'Alcestis' of Euripides, and in that 'Apology,' so instinct with modern subtlety, which he puts into the mouth of Aristophanes. Nor should it be overlooked that all Browning's work has one element of kinskip, unconscious but important, with the Greek; pervaded as it is by an intense vitality, it is always a voice of life; it has more affinity with the spoken word than with the written."

"For a long time after the revival of ancient literature," Professor Jebb continued, "men were occupied chiefly with the beauty of its form; this is the period to which Erasmus belongs, though he himself was much more than a stylist. Next, study was attracted by the wealth of the subject-matter contained in the classics, and we have the labours of such men as Casaubon. The third stage is that of textual criticism, in which Bentley was a vigorous pioneer. So far the general characteristic had been the predominance of individual genius. A strong personality arose, a man like one of those just named had made an epoch. His work was emphatically his own, and he was bound by no rules except such as he might lay down for his own guidance; but, as generations went on, and the literature of these studies grew in volume, students began to feel the need of more agreement on general principles. In the present century the scientific spirit has added the domain of these old studies to its conquests. Within the last fifty years the comparative method has created a science of language. The study of manuscripts, as such, has become the science of palæography. Textual criticism is, within certain limits, a science; so is archæology; or rather it is a group of kindred sciences. All this is excellent; though there are certain tendencies, incidental to this progress, which it is desirable to keep within due bounds. There is some danger, perhaps, lest, under the influence of high specialising, the various departments or sub-departments of classical study should become too much isolated from each other and the larger view of the humanities be lost. The other danger is lest the zeal for scientific precision should obscure the nature of the material with which all scholarship has to deal—viz., the creations of the human mind in language, in literature, or in art. No study concerned with such material can attain its highest aim unless the purely intellectual spirit of science is controlled by the literary and artistic sense, which is partly moral. To hold the balance between them must always be difficult, and is peculiarly so in an age like our own; but the rising generation of scholars, the future guardians of the classical tradition, will perhaps do well to heed these things. Meanwhile it is a matter for unqualified rejoicing that the study of antiquity has become wider and more real, and is now capable of satisfying a greater diversity of intellectual appetites. The gain here might be illustrated by a typical case—that of Thackeray, who in his charming 'Notes of a Journey from Cornhill to Grand Cairo' records his first visit to Athens. He imagines the Greek Muse coming to him in a dream and asking him whether he is not charmed to be there, and he replies to her, 'Madam, your company in youth was made so laboriously disagreeable to me that I cannot at present reconcile myself to you in age.' After an admirable description of the view from the Acropolis, he adds: 'Musing over this wonderful scene, perhaps I get some feeble glimpse or idea of that ancient Greek spirit which peopled it with sublime races of heroes and gods, and which I never could get out of a Greek book.' Yet Thackeray had been at the famous school which, a little earlier, sent forth Thirlwall and Grote. Under the present methods there is less danger that a boy of such gifts should have a like experience. Not only are the Greek books made more attractive, but there is an easier access to glimpses of Greek art. It may fairly be said that classical studies are now, on the whole, more efficient in this country than they ever were; they are at many points deeper, they are more comprehensive, and they are more in touch with the literary and artistic interests of the day. I believe, too, that the classics will keep their place in our system of liberal education. This belief rests on the fact that their true claims are now more generally understood. Critical studies in history, in law, in language, and in various branches of archæology have brought out the number and complexity of the threads by which modern civilisation is interwoven with the ancient civilisations of Greece and Rome. The Greek mind stands out clearly as the great originating mind of Europe; it has given us not only standards of literature, not only models of art, but ideas which have been fruitful in every field of human thought and life. As Renan says, 'Progress will eternally consist in developing what Greece conceived.' The positive results of antiquity in special branches of knowledge, such as medicine or natural science, have indeed been absorbed into modern books; but if we desire to study antiquity itself, to see how ideas have been evolved, to understand, in short, the earlier chapters of our own history, then we must needs go to the mental records of our European ancestors. This constitutes the historical claim of the classics. On literary grounds their claim is twofold: firstly, on account of their intrinsic beauty and their unexhausted wealth of suggestive thought. As to the latter, let us remember what is so well said by John Stuart Mill: 'The discoveries of the ancients in science have been greatly surpassed, and as much of them as is still valuable loses nothing by being incorporated in modern treatises; but what does not so well admit of being transferred bodily, and has been very imperfectly carried off even piecemeal, is the treasure which they accumulated of what may be called the wisdom of life, the rich store of experience of human nature and conduct which the acute and observing minds of those ages, aided in their observations by the greater simplicity of manners and life, consigned to their writings, and most of which retains all its value.' Secondly, there is the fact that, either directly or indirectly, they have moulded, or at least helped to inspire, almost all the best writing of the modern world. Modern literature can be appreciated and enjoyed without their help; but the light which they can give adds zest to the enjoyment and depth to the appreciation, and they alone can explain the process of development. On the third claim of the classics, the linguistic, it must suffice barely to touch. It is not necessary to dwell on the cardinal importance of Greek and Latin for the study of comparative philology and of general grammar. As instruments of mental training, again, they have the advantage of a structure organically distinct from the modern The very freedom with which the order of words can be varied in a Greek or Latin sentence—a freedom unparalleled in any modern language—increases the value of the exercise in analysis; and, when the classical languages are rhetorically, though not quite accurately, described as 'dead,' that very epithet suggests one of their chief recommendations. In a modern language living authority can decide questions of usage or idiom; Greek and Latin, in which there is no such resource, make a more exacting demand on the learner's nicety of judgment. And this consideration applies not only in the province of language, but in the whole domain of classical study. It is good to have in our literary education at least one large subject rich in problems which excite curiosity but do not admit of any certain solution. 'Probability,' as Bishop Butler says, 'is the very guide of life'; and for probable reasoning, as distinguished from demonstrative, it would be hard to find a more varied field than is afforded by the classics. Nearly two centuries ago Bacon spoke of those who 'call upon men to sell their books and buy furnaces, forsaking Minerva and the Muses as barren virgins, and relying upon Vulcan.' He further expresses his opinion that the progress of knowledge has been retarded by a tendency to neglect the general training of the mind—'philosophy and universality,' as he terms it—in favour of professional studies. It is no new thing, the question how far and how best we can combine education, the bringing out of the faculties, with instruction, the imparting of valuable knowledge. Modern life, so complex, so restless, and so competitive, naturally tends to insist first upon instruction; but as no progress of science can enable men to think faster, a sound economy of educational time depends on the same principles as ever. Classical studies serve to inform the mind, in the proper sense of that word; they serve to mould and to train it, but they also instruct; and the uses of the knowledge which they can give are manifold. They cannot, indeed, create the literary faculty, though they seldom fail to improve it where it exists; nor can they humanise characters that resist their charm, though, where that power finds entrance, they vindicate their title to be called 'the humanities.' In any reasonable scheme of liberal education studies such as these

deserve to retain their place. As Mr. Freeman, one of their staunchest defenders, once said: Let them be 'the objects of a reasonable homage,' not 'of an exclusive superstition.' Nothing, I believe, would tend more to confirm the position of classical studies in this country than a deeper and more systematic study of modern languages and literatures. Every addition to the clearness with which we see the continuity of literary tradition in Europe must add force to the words which Dante addresses to the shade of Virgil, 'Tu se' lo mio maestro e'l mio autore'; for the relation of modern to ancient literature is that of a disciple who renounces no part of his originality or his independence when he acknowledges his debt to a master and a guide."

MEATH HOSPITAL.

INTRODUCTORY ADDRESS BY DR. CRAIG.

DR. CRAIG, in the beginning of his address, referred to the sad loss that the Meath Hospital and the entire profession in Dublin had sustained by the deaths of Dr. Foot and Professor Rawdon Macnamara. Dr. Foot he described as a truthful bedside observer and a clinical teacher not unworthy to take rank with Graves and Stokes; and with regard to Professor Macnamara he said that he could not do better than quote the words of THE LANCET[1] that "he was a most conservative surgeon, though a fearless and quick operator." After a few remarks upon the high standard of working efficiency that had been reached by the Meath Hospital—a standard that, in his opinion, could only now be fairly maintained or raised by some enlargement of the honorary staff—Dr. Craig addressed himself to the students. "It is now my privilege," he said, "on behalf of my colleagues and myself to offer a hearty welcome both to the recruits who come amongst us for the first time this session and to those who have been with us in the past. The choice of medicine as a profession should not be made lightly. I am convinced that in no other calling in life are such demands made on the patience, courage, strength, and sensibilities of the beginner as in our own. It is, perhaps, the very noblest profession, but it is also the very hardest. To the beginner, then, I would say: Keep up a brave heart, and remember that on the long uphill road to success the steepest rise is at the start. I have already said that the choice of medicine as a profession should not be made lightly. The possession of good health is a qualification of countless value. The calls that are made on the strength of the student should make the weak or delicate pause before entering the lists. In any case I charge you to look well after your own health—prevention requires no cure." Dr. Craig then gave his younger hearers some very sensible advice as to the value of judicious athletic exercise as a factor in the maintenance of health, pointing out that a broken collar-bone or a sprained ankle, though unpleasant and not uncommon results of football, were better companions than indigestion and phthisis. But games must not be allowed to occupy too much of the student's attention. "You are coming to your studies," he said, "armed with youth and hope and enthusiasm, and splendid fighting gear they are; but youth is fond of pleasure, and hope may be the seductive whisper which promises that idle days and neglected studies can be made good by future effort, and enthusiasm, too, may spread itself over much less important objects than daily work. So you see that, in addition to youth and hope and enthusiasm, you will require a more extensive equipment to carry you over the thorny paths of first beginnings. The subjects set apart for your earlier studies must be thoroughly mastered, and it is only by so doing that you will be able to lay deep and firm the scientific groundwork for the study of the disorders in the structure and functions of the body, which is to be your ultimate special work. The further you advance the easier becomes the ascent, but only if each ladder you climb is strong in its completeness. Let me implore you, then, not to consider the junior subjects as unworthy of anything short of absolute mastery." Dr. Craig then sketched the curriculum required of the medical student in the Royal Irish Colleges and subjected it in more than one direction to unfavourable criticism. He considered that the absence of all examination tests in anatomy at the end of the first year made a great demand upon the student's conscientiousness, whilst in the present state of our knowledge he held a one year's course in physiology to be altogether too short. He also regretted the fact that there was not in connexion with the Dublin hospitals any system of post-graduate lectures. With regard to the extended period of study that came into force in 1892 he pointed out that additions had been made in three directions chiefly, and continued: "First, a course in practical pathology takes its place as a separate subject. True that in Trinity College such a course had been generously given for a number of years, but it was entirely optional. Now, however, the examinations in this subject, which were formerly of a vaguely theoretical nature, are likely soon to become as practical as is the case in histology. That this is a step in the right direction is very evident, for if we turn our attention alone to the examinations at present held for medical officers in the army and navy, what do we find? A microscope is placed on nearly every table, and, besides requiring an intimate knowledge of the specimens placed under these, various examiners in medicine and surgery give special prominence in every case to the minute pathology of each disease. In fact, pathology is now the subject of greatest importance in all the higher examinations. Coming to the next advance which is aimed at in the new curriculum, you will find that the subject of Public Health, although nominally included in the former courses, will now occupy a more dignified position in your examinations. This change is one which is highly commendable and should bear good results. We are living in the days of preventive medicine, and so much has already been done in enabling us to cope with the spread of fevers and other infectious diseases by observing the simplest hygienic rules that a great deal more is to be hoped for in the future." Dr. Craig then pointed out that the taking of the diploma in Public Health would probably be attended with solid advantage. "In Ireland," he said, "the Local Government Board has always been content to have medical officers of health appointed without any evidence of special knowledge to entitle them to undertake such posts; but in England the health officers are selected only from those who have taken out a diploma in Public Health. To those of you, therefore, who in the future may be seeking for appointments in England, and equally so to those who may enter the naval and military medical services, the possession of this qualification will be of great advantage, and, indeed, I hope that the time is not far distant when the tests for it will take their place on the list of compulsory examinations." The third addition made to the curriculum seemed to Dr. Craig to be of equal importance. "The student is required now," he said, "to produce a certificate of three months' attendance at a hospital for the treatment of mental disease. In bygone days an examiner might venture at times to set a question or two on the different forms of madness, but to miss or answer these was a matter of like importance. Accordingly, when it came to the turn of the general practitioner to sign a certificate for the removal of a lunatic, he found himself greatly exercised as to what particular form of mental disease he should enter over his signature, and his prescriptions, too, when it came to a question of treatment, were confined to a strait-jacket or a rope. However, that such a state of affairs might continue no longer, the law-makers of medical education have wisely decreed that a systematic clinical course must be taken out in one of the asylums for the insane." Dr. Craig concluded with an eloquent appeal to the students to be true to the high ideal of their nation and their profession. "I stand," he said, "on no lofty platform of superior virtue; but from my place in the student ranks I have seen the qualities that in our chiefs have won all hearts, from that of the sick beggar to the critical leader of society, and, hardest of all to win, that of the members of their own profession. I dare scarcely, then, do less than tell you what to me has seemed as most worthy of aim. The character which is formed in your student days will not readily leave you; strive, then, to keep fresh and green the innocence in which most of you have left the pure atmosphere of home. Be courageous. Courage in the face of danger and a spirit of the highest self-sacrifice are traits so common amongst our body that their mention here is superfluous. Only the other day we read of a professional brother that 'in the memory of Thomas Heazle Parke all Irishmen possess an ideal of what a man should be.' You require to be sympathetic, and if you are not possessed of this quality in a very large degree you must foster carefully what of sympathy you have, and cherish its growth with incessant watchfulness. You have mistaken your calling altogether if you ever become callous or hardened in the presence of suffering. You must of necessity give pain on occasion both by speech and action; be careful never to

[1] THE LANCET of April 22nd, 1893.

do either unnecessarily. But when it is necessary be fearless, and take up and maintain a position of independence. Scorn to trade by methods of humbug on the credulity of human nature. Use no unworthy means in your efforts to succeed, for, though temporary success may follow, you will fail to gain the confidence of those whose opinions you most highly value. Acquire a name for truthfulness—it may do little to increase your banking account, but it is of greater value to its possessor than gold. Aim at that goodness of heart which can appreciate the good qualities, and still make allowances for the shortcomings of others. To those who are about to leave this friendly harbour, where they have taken in supplies with which to embark on the voyage of life's work, I would give the additional advice: Endeavour to avoid our besetting sins, which are professional jealousy and backbiting. And I would add to this the words of Whittier:

> 'The paths of pain are thine. Go forth
> With patience, trust, and hope;
> The sufferings of a sin-sick earth
> Shall give thee ample scope.
> Beside the unveiled mysteries
> Of life and death go stand
> With guarded lip and reverent eyes
> And pure of heart and hand.'

ST. MUNGO'S COLLEGE, GLASGOW.

INTRODUCTORY ADDRESS BY MR. R. T. KENT, M.A. OXON., F.R.C.S. ENG., F.F.P.S. GLASG.

MR. KENT began by alluding to the brief period of his own connexion with the school, and the brief history of the school itself, as depriving him of many chances of fluency; "but," he said, "this very youthfulness of our College, this want of history, is, I think, by no means a disadvantage to the present members of our society. At all events we here are not eclipsed or overshadowed by any names so great that our courage need fail at any thought of emulation, and it is open therefore to each one here to make at the same time a name for himself and a reputation for his College." With reference to the connexion of the school with the Royal Infirmary, he said: "It can, perhaps, be hardly too strongly insisted upon that the existence of our school is of the utmost value to the Royal Infirmary, and that without the school the Infirmary would be very seriously and permanently crippled in the charitable and noble work which it is performing in a densely populated district. In an address to medical students, such as this professes to be, it may not perhaps be out of place if I attempt to discuss one or two of the many vexed questions connected with the subject of medical education. You are aware, of course, that a great alteration in the length of that curriculum has lately been made, and that instead of a four years' a five years' course of study is now compulsory upon all students. The effects of this change have been evident in a general decrease in the number of entries at the various medical schools throughout the whole country, caused doubtless by the fact that the change has been introduced during a period of great commercial depression. But there can be no doubt that the additional year's study will be to the advantage of the student as well as to that of the general public who will hereafter entrust their lives to his care. But whilst I fully approve under existing circumstances of the extension of the curriculum to five years, I think it would have been well if with so great a change there had been introduced more stringent regulations as to the manner in which those five years should be spent. Thus, whilst allowing five years to be the minimum time in which it should be possible to obtain a diploma, I would have imposed also a certain period of time to elapse before each examination, to be occupied exclusively in preparation for that examination and for no other. By these means I would make sure that a proper time had been spent in the preparation of each subject and would thus put a stop in a great measure to that dangerous 'spurting' by the aid of cramming during the last year or so of the curriculum to make up for lost time." Mr. Kent then went on to criticise severely and at some length the very low standard of general education that is required of the medical profession, as proved by the elementary character of the preliminary examinations. He held it to be illogical of the various examining bodies to demand the attainments to a high degree of professional knowledge, whilst they provided no more rigorous barrier to entrance of the profession. "Surely it is somewhat anomalous that all the examining bodies who grant licences to practise should lay down more or less stringent regulations as to the course of professional study, whilst they allow the greatest possible latitude as to the manner in which the general education of their candidates shall have been conducted. It would, no doubt, be of great advantage both to the students themselves and to the medical profession generally if the only entrance to the profession was a degree in Arts of a recognised university; but such a regulation as this might perhaps be too severe. But could we not, without going quite so far, ensure that every student before commencing his professional studies should, in addition to merely passing an examination, undergo a more or less definite training in Arts?" Mr. Kent divided medical students into two classes—those desirous of taking a degree in Arts and an honour degree in Surgery or Medicine, and those by whom such degrees are not particularly coveted. Of the former class, he pointed out that the majority are members of a university at the beginning of their career, and to such it would be no real hardship to make an Arts degree compulsory; but with the second class of students, who are not members of any university, the problem is much more complicated. "We cannot," he said, "compel them to go to the universities for their general education, and at the same time we are not justified in assuming, because they can produce evidence of having passed a certain examination, that their preliminary education has been such as is desirable for members of a learned profession. There only remains, then, one possible alternative—to approximate, as far as possible, the preliminary training of intending medical students to that required for the Arts degree of some university. In London the great bulk of medical students labour under the disadvantage of having no university available to grant them degrees upon the same or similar terms as those on which they are obtainable from the Scottish or Irish Universities, and to remedy this it has been proposed to create what I may call a skeleton university, which shall grant degrees to this great body of students without materially altering that course of study which now qualifies for the licence. In other words, because the students at the outset of their career have not gone to the universities, a new university is to be created, and brought to the students." After some remarks upon the value of a university degree, Mr. Kent continued: "There are some here no doubt, who will think that I am placing too great a stress upon the value of a liberal education to a medical practitioner. 'Of what use is it,' they will say, 'to us to have spent so many years in the study of classics, mathematics, philosophy, &c., if we cannot make use of them in our profession? All the classics in the world will not teach us how to set a fracture, nor all the mathematics how to treat a case of typhoid fever.' But they forget that the medical practitioner has other than mere professional duties to perform, that he is brought into contact with members of other professions, that he becomes their friend and very often their confidant, and that it is to his advantage to become not only a skilful practitioner but a wise and useful citizen." He then left the subject of general education for the consideration of the teaching of anatomy. "Why is it," he asked, "that at the final examinations so many men come to grief over what is known as surgical anatomy? They have spent one, two, or even three years in attendance upon anatomy lectures and upon classes in the dissecting-room, and what, I would ask, is all their anatomy worth if it is not surgical? The time so spent can hardly be considered to be very productive. In the early part of this century, when the University of Oxford awoke from a long period of neglect, and formed plans for the education of the rising generation, a sharp controversy took place between the leading men in the educational world, of Edinburgh on the one hand and Oxford on the other. In the north they were all for utility in learning. They held that education and instruction should be made 'useful,' and that no knowledge was worth having if it was not directed to some particular end or object. Either, following this view, we must consider that the discipline involved in learning anatomy has its own intrinsic value, or else we are driven to the conclusion that the only object of anatomy is to form a basis upon which is founded a sound knowledge of surgical principles. Now I do not imagine that even the most enthusiastic anatomist would ever dream of proposing that the study of anatomy should form part of the education of those who are destined to become advocates, lawyers, ministers, or commercial men, or, in other words, would consider that the study of anatomy would have any value as a process of training. But if anatomy cannot be held to form

part of a medical student's education on account of any mere value it may possess as a process of training, we must conclude that it is intended to afford him such a knowledge of the human body as will assist him to comprehend and appreciate the origin and course of surgical diseases, and the why and wherefore of modern surgical methods of treatment. Now, is this the case? Is anatomy such as is now taught in our dissecting-rooms, and such as is now required by the examining boards, of this nature? I think not. I imagine you will agree with me when I say it is the rarest possible thing to hear a fact in anatomy dwelt upon in the dissecting-room on account of its surgical importance. And the same is the case with the examinations. Much of the knowledge a candidate is expected to show is such as can have no possible bearing upon surgery, at all events in the present state of that science, and such as he may forget with the greatest advantage the moment he has passed his examination, for he will never need to recall it throughout the whole of his professional career. In many schools anatomy is taught by scientific anatomists, who, without being ignorant of surgery, care little or nothing about it. They love their science and would make the best possible teachers if the students under them were destined to become scientific anatomists like themselves; but for one student who is so destined nine hundred and ninety-nine are intended for medical and surgical practitioners, and to such anatomy should be taught from a surgical point of view. I am strongly of opinion that, having regard to the rapidly increasing amount of knowledge which it is absolutely necessary that a student must acquire, a little local bloodletting in other directions will soon be necessary; and that it is high time that the character of our examinations should be very considerably altered. Accordingly I would suggest that amongst other alterations the anatomical problems which are put to the candidates shall have more bearing than is now the case upon the science of surgery. Should this ever come to pass, as I sincerely hope it may, then will anatomy truly become what in my humble opinion it ought to be—namely, "the institutes of surgery"—and the labour of the student will be not only considerably lightened, but will be made more useful and more entertaining." Mr. Kent then alluded to the enormous and almost daily increase in medical and surgical knowledge, with all of which the present student is expected to keep pace and in the future will have to deal, and concluded that unless the curriculum were indefinitely prolonged some abbreviation of the demands upon the student's memory would have to be made, and in his opinion he considered that much of the materia medica taught was a useless burthen. He concluded as follows: "Whilst I am no enthusiast, revelling in the multiplication of dry anatomical facts, splitting up ligaments by the application of fantastical terms to scarcely distinguishable parts, or inventing new names in the place of those already grey with age, it is far from my wish to depreciate in any way the value of anatomy when considered as the handmaid of surgery. Without anatomical knowledge the man who would undertake to remove a tumour, to reduce a dislocation, or to perform the simplest surgical operation is not one whit superior, in spite of all his qualifications, to the veriest bonesetter, who by a lucky wrench chances to force a bone into position, perhaps after the most skilled performers have tried in vain."

A CASE OF ENGLISH CHOLERA.

BY ERNEST A. SNAPE, L.R.C.P. LOND.

AN unmarried woman aged twenty-four was seen by me on Sept. 7th at 7.30 P.M. She had been suffering from almost incessant sickness and diarrhœa for three hours and a half previously. She was in a state of profound collapse; her hands, feet, and legs were icy cold; her body was in a cold clammy sweat, and there was no radial pulse to be felt; her eyes were very deeply sunken, her face was cyanosed, and she was unable to speak above a whisper. She complained of very acute cramps in both feet and legs. At 9 P.M. Dr. Achard kindly saw the case with me, when her condition, although still most critical, was slightly improved; the extremities were warmer and the pulse was just perceptible at the wrist. The temperature was 95·2°F. The diarrhœa ceased after the collapse appeared, but the sickness, or rather the retching, continued. At midnight the slight improvement was maintained, the temperature being 95·8°. There was a constant desire to defecate, but no motion was passed. The cramps continued to be most severe. On the next day (Sept. 8th) she was better; the extremities were warm and there was less cyanosis, but the pulse remained very feeble. The temperature was 97·4°. She passed one motion during the night. During the day she was not quite so well, owing probably to the severe pain of the cramp in her legs, and she passed two very watery stools. The sickness was much less, but there was almost constant retching. On Sept. 9th she was much better and passed urine twice after a period of suppression lasting for more than thirty-six hours, during which time there were no physical signs of distension of the bladder. After this she rapidly progressed towards recovery. The treatment consisted of application of heat to relieve the collapse. Only iced brandy-and-water and iced milk-and-water were given to the patient, but after the first few hours it was found necessary, on account of the persistence of the vomiting, to feed the patient by the rectum for two days. Ten minims of tincture of iodine were given every two hours for twelve hours, and then every four hours for three days. Hypodermic injections of morphia were necessary to relieve the cramps. Specimens of the vomit and dejecta were sent by the medical officer of health for Marylebone to the College of State Medicine, where they were examined by Dr. Dempster, who reported that he was unable to find any comma bacilli.

My object in reporting this case is to draw attention to the following points: (1) clinically, its marked resemblance to Asiatic cholera; (2) the extreme importance of a bacteriological examination in every suspicious case, without which an accurate diagnosis is impossible; and (3) the obvious importance of a correct diagnosis.

Welbeck-street, W.

SEA VOYAGES FOR THE SURGICAL CONVALESCENT.

WITH STATISTICAL TABLES.

BY LEOPOLD HUDSON, F.R.C.S. ENG.,

SURGICAL REGISTRAR TO THE MIDDLESEX HOSPITAL; ASSISTANT SURGEON AT, AND SURGEON TO THE AURAL DEPARTMENT OF, THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET; AND SURGEON TO THE HIGHGATE CONVALESCENT HOME.

THE question of the benefits to be derived from a sea voyage by the ailing and the convalescent has formed a fruitful theme for medical writers, past and present; but whilst they have drawn up lists of diseases in which such a course may be expected to produce alleviation or cure, and whilst they have indicated, sometimes a little dogmatically, the stages of each malady which they consider to be favourable or the contrary for this treatment, they have contributed but little information as to the climate of the ocean itself.

A historical survey of the literature of ocean travelling for the sake of the health reveals the fact that this practice was well known to the ancients, but that it fell into disfavour, its revival, indeed, only dating from the middle of the last century. That the Greeks appreciated its value is evident from the writings of their earliest physicians, and there is testimony to show that the short but stormy voyage from the mainland to the Asclepion on the island of Cos, where Hippocrates gave his advice, was looked upon as of value in promoting restoration to health. Records of this have been found on brazen shields in the temples, forming as it were clinical notes. Dr. Ebenezer Gilchrist[1] was one of the first of the more modern school to attempt to revive sea-voyages as a therapeutic measure. In his preface, which is for other reasons well worthy of perusal, he says: "Sailing or living at sea, though for many ages past scarce mentioned in relation to medicine, seems nevertheless to have held a distinguished rank among the great remedies of antiquity. How it came to be disused I cannot say, nor is it easy to foretell what reception it will meet with now that an attempt is made to bring it again into practice." Some of the illustrative instances read very curiously in the light of our modern notions of case-recording, as the following example will show. A gentleman being affected with a megrim had occasion to go to sea, without any regard to his distemper, and was cured, though the voyage was short, commonly a few hours' sail. Much of the virtue of sea voyages Gilchrist attributed to the vomiting. "From daily experience we know that fixed obstinate pains, particular tumours and topical inflammations, threatening a dangerous apostemation, are thereby entirely removed or have their increase retarded. Rebellious ulcers it renders more tractable and hæmorrhages are wholly

[1] The Use of Sea Voyages in Medicine. By Ebenezer Gilchrist, M.D. Dumfries. New edition, 1771.

stopped, restrained or prevented by it." He quotes Hippocrates approvingly that sea-water is good to extenuate ulcers already cleansed, for ulcers of fishermen, for callous or fistulous ulcers and for such as are badly cicatrised; spreading ulcers likewise it stops and mitigates. Amongst general affections, he recommends those who are affected with "tenderness," "scurvy," "the vapours" and "the evil" to take sea voyages. His most successful cases, however, seem to have been amongst phthisical patients. He sums them up in the following way: "Bleeding, issues, a prudent use of crude mercury and of the natural balsams, proper diet and living at sea; these seem to comprehend everything essential to the cure of a glandular consumption of the lungs; almost all other things are of small value." He likewise naively observes, quoting Aristotle, that "the air at sea is better ventilated," whereby the deleterious effects of aerial stagnation are avoided. Sea air, he tells us, is mild, cherishing and warmer as compared with that passing over great tracts of land, "the which is loaded with rigid, chilling particles." His theories as to the greater "collision and conquassation" of air at sea in dissipating land-begotten impurities may not now command acceptance, but the therapeutical indications which he formulates are as apposite now as then.

Dr. Alexander Sutherland, writing about the same date,[2] defined sailing as a "compound exercise of gestation, spasmodic vomiting and a singular action of air." Air, he says, is a word that fills the mouth of every babbler. Without experiment some condemn London air, others that of Bath. Cœlius Aurelianus says sea air is aperient and cleanses the body from impurities, and Oribasius judged maritime places proper where there was occasion to "warm, resolve and deterge." Dr. Sutherland adds that, where voyages cannot be complied with, the sick ought to live on dry elevated shores, to ride often and close by the sea, especially during the flowing tide, to be frequently amongst the rocks and to sail every day. In such air, he says, phthisical patients "live safer and recover faster than at Hampstead, Kensington Gravelpits, or Marylebone, where they generally trifle away so much time that the restorer of Lazarus can alone save." In a chapter devoted to the consideration of diseases adapted to sea air he relates several typical cases, one of which is so much to the point that I cannot refrain from quoting it here. A lady of Newcastle, "young, strong and healthy, by accident received a contusion on her hip, which by neglect formed an ulcer. She was under the hands of surgeons for a twelvemonth and upwards. Every dressing discharged matter to a considerable quantity. Sinuses ran between the interstices of the muscles up and down, forward and backward, deep enough to bury the probe. Introsusception of matter produced a putrid hectic fever, with purging, atrophy &c. In this condition it was resolved to transport her to London for the benefit of surgical aid. As she could bear no carriage whatsoever she was put on board of a collier. The very first night she found amendment, slept better and began to recover her appetite. In a few days she gathered strength and sat on deck. The passage was stormy and lasted fourteen days, at the expiration of which hectic, sweating, atrophy, loss of appetite and every symptom vanished. What, above all, seems incredible, without one dressing the sinuses all healed up and the wound was firmly cicatrised. Twelve months after I saw her in perfect health." He also alludes to the experience of Dr. Towne, who tells of people reduced to "a most calamitous appearance," upon the verge of the grave, from continued colic, in a week's time being recruited beyond expression by sailing, when they were incapable of undergoing any kind of carriage. "Nothing," says this same Dr. Towne, "conduceth more towards a recovery than exercise and change of air; no kind of exercise more than sailing, no air more than sea air."

Physicians, to have written so strongly as this, must indeed have been convinced of the efficacy of their prescription, especially when the conditions of living during a voyage at that time are taken into consideration. To gain an insight into these conditions as they existed at the time that Gilchrist and Sutherland wrote, some of the works of Dr. Tobias George Smollett should be consulted. Smollett entered the navy in 1741 and served for about five years, and very graphic accounts of his experiences are to be found in "Roderick Random"[3] and "The Compendium of Voyages."[4] His descriptions of our nautical world at that time are, as Scott has said, rendered with such truth and power of delineation that whoever has since undertaken the same task has seemed to copy more from Smollett than nature.

To what extent have we improved on the empirical treatment of doctors of old? In other words, what has been done in the direction of rendering the "ocean treatment" more accurate and scientific? Coming to present day literature we find it commonly remarked that the curative effects of sea air and of ship life appear even now to be only slightly understood.[5] In the columns of THE LANCET reference has many times been made[6] to the prevailing ignorance of practitioners who send patients to sea—ignorance not so much of the disease or of the patient, but of the conditions to which they are subjecting him—ignorance of ships, routes and seasons, yet excepting stray papers scattered here and there through the medical journals and a few chapters in Dr. Wilson's[7] book there does not appear to be any special work of guidance. Amongst the more recent of the contributions to this subject is that of Dr. Shoemaker of Philadelphia,[8] who gives a summary from the physician's point of view of the ailments in their several degrees in which benefit from a sea voyage may be reasonably expected and shows himself quite an enthusiast on the subject. Of modern writers no better exponent of the features and modes of the ocean lives than William Clark Russell, in turns midshipman, journalist, and novelist, but his vivid descriptions contain no information of therapeutic value. Second only to the therapeutical effect of the air itself are the absolute rest and entire change of scene on a voyage. In travelling by land, says Washington Irving, there are a continuity of scene and a connected succession of persons and incidents that carry on the story of life and lessen the effect of absence and separation. We drag, it is true, a "lengthening chain" at each remove of our pilgrimage, but the chain is unbroken; we can trace it back link by link and we can feel that the last of them still grapples us to home. But a wide sea voyage severs the traveller at once. It makes him conscious of being cast loose from the secure anchorage of settled life and sent adrift upon a doubtful world; it interposes a gulf—not merely imaginary, but real—between him and his home, a gulf subject to tempest and fear and uncertainty, that makes distance palpable and return precarious. But this very condition of uncertainty might prove of great service to any one recovering from an operation for cancer, acting as a tonic to a mind unhinged by long brooding or clouded by a settled melancholy. The wrench at parting, the absolute separation from the locality of the operation and the break of continuity might be most valuable restoratives; after a few weeks the change is striking and the patient returns to his home surroundings a new being.

With regard to the classes of medical cases best suited for ocean treatment I wish to speak only generally. Ocean travelling is a valuable auxiliary means of promoting convalescence and of enabling persons whose standard of vitality is below the normal to evade the attack or to resist the progress of certain maladies. In some cases of mental derangement, using that term in its widest sense and including brain worry and mental prostration, sea voyages have been recommended as a general restorative. The case of the jaded brainworker is admirably put by Dr. Shoemaker, and he indicates other deranged conditions in which he has been able personally to remark the improvement which followed a sea journey. Weak anæmic young people of both sexes improve wonderfully at sea. Amongst cases of phthisis, those in an early stage do the best;[9] as to the more advanced cases, it is now generally agreed that where night sweating or diarrhœa exists retrogression rather than improvement is to be expected from residence on the sea.

The influence of an ocean climate upon the course of cases of surgical tuberculosis is difficult to estimate, but so far as can be judged it appears that the rule in analogous medical cases holds good. Take the case of a tuberculous lymphadenitis; if it is early, before softening has taken place, when there is no suppuration or chronic

[2] Attempts to revive Ancient Medical Doctrines. By Alex. Sutherland, M.D. 1763.

[3] Adventures of Roderick Random, 1748.

[4] A Compendium of Authentic and Entertaining Voyages, 1757.

[5] Consult, for instance, a paper on "Life at Sea Medically Considered," by Dr. Hughes Bennett (Medical Times and Gazette, vol. i. 1884, p. 244) and a criticism of it by Mr. R. W. Parker in a later number of the same journal.

[6] Vide articles in THE LANCET, vol. i. 1876, p. 716; vol. ii. 1886, p. 19; vol. ii. 1890, p. 131. See also "The Ocean Cure," Brit. Med. Jour., vol. i. 1883, p. 267.

[7] The Ocean as a Health Resort. By W. S. Wilson. London, 1880.

[8] Notes on Ocean Travel for Health and Disease, by Dr. J. V. Shoemaker, Philadelphia, U.S.A. THE LANCET, July 23rd and 30th, 1892.

[9] But Dr. Burney Yeo doubts whether phthisis at any stage is benefited by ocean travel.

discharging sinus, when the evening temperature is not raised and when there are no signs of visceral complication, then the patient improves immensely and the glands rapidly return to the normal size. Cases of rather graver character also do remarkably well. In so-called scrofuloderma, for instance, where caseous glands have broken down and are partially evacuated, leaving areas of undermined, cyanosed and unhealthy-looking skin, between which there open sinuous tracts leading from degenerating granulomatous tissue and secreting a thin and ichorous discharge; in such cases a rapid reconstruction of tissue takes place, the caseous material is quickly cast off, the granulomatous remnant organises into a firm cicatrix, discharge ceases, and the surface heals kindly. The large experience of Dr. Peacock [10] can be quoted in favour of sending scrofulous children to sea. He advocated sending them several voyages and spoke of the marked alleviation of local and general symptoms which followed. It is, of course, as Dr. Wilson observes, most inadvisable to send a patient to sea whilst he is suffering from the more acute forms of joint disease, as the constant surgical attention and the many appliances and comforts required by the sufferer can scarcely be obtained on board ship; but, apart from these, there are the advanced cases of surgical tuberculosis when the suppurative process is still active and accompanied by hectic febrile disturbance: these are only rendered worse by a voyage, the distress of the patient being increased by every movement of the ship and the ocean climate reacting in the most unfavourable manner on the constitution. Dr. Shoemaker remarks that he has never observed any favourable or abortive effect upon the course of acute suppurative processes. Still in the exhaustion following a suppuration a sea voyage is a most prompt and effective remedial agency, increasing the resistant power of the system and therefore indirectly favouring a speedy termination of the case.

The great bulk of the literature on this subject deals exclusively with the medical invalid—with the individual who has passed through a conflict with disease and has come out of it with damage to one or more of his "systems," usually the pulmonary, but frequently also the cardiac or the digestive. For such patients elaborate rules have been laid down and the particular quarter of the globe to which they should go has been indicated. Many of these trips are not advised for the express purpose of the ocean voyage, but the latter is merely an incident in the removal of the patient to a more temperate and equable or otherwise more suitable climate. We are accumulating a mass of information as to the seasons in the various parts of the globe resorted to by invalids, but much more knowledge of this kind seems to be desirable in respect of the ocean to be crossed. My thesis is that the surgeon, as frequently as the physician, meets with patients who require to take advantage of the full bracing effects of a life spent on the sea, and that a sea voyage is a sovereign remedy in the debility after surgical operations, where the convalescence is slow and tedious; but the surgical convalescent is often of quite a different class from the one who usually forms the subject of consideration by the physician. It is, indeed, the *convalescent* rather than the *invalid* who has most to hope for from sea air. The patient may have been emaciated and weakened by some process of disease that was completely removed by operation, leaving him with sound but delicate viscera—viscera simply weakened by the enforced residence in bed without being structurally damaged by the malady that has prostrated him. For such patients it may not be necessary to select a climate that would deal gently with a tender lung, that would not embarrass a leaky heart, or that would not upset a rebellious liver. With them it is often not a matter of importance that the voyage should be undertaken at once; they may be able to wait and allow the time of starting to be chosen by some more general considerations. It was a case of the following kind which started me on the present inquiry. A patient who had been the subject of neglected renal calculus, who had lost immensely in strength and stamina as the result of this neglect, but who by operation had been completely relieved of his trouble before permanent damage to the renal structures had ensued, was anxious to take a voyage and consulted me as to the route and time of starting. He had no visceral complication that necessitated selection of climate—indeed, he complained of nothing beyond general lassitude and debility; but he told me that he always suffered from the cold, which was so disagreeable to him that he usually for that reason wintered in the south. He desired, as there was no urgency, to start at such a time as to encounter the highest average temperature on the voyage round the world. Whilst I was searching for some data to act as a basis for advice on this question I heard of another case with very similar bearings. It was that of a child who had made a tedious but perfect recovery from excision of the knee for tuberculous disease. The joint was quiescent and painless, but the boy was very weak and low after the operation. On examination there was no evidence of tubercle elsewhere. This child had passed all his life in a cold climate and bore the heat of an English summer very badly. For his general improvement a voyage round the world had been counselled, and it was intended that he should sail from England at such a time as would give him the coolest voyage. So far as these particular points were concerned my search into the current literature of the subject proved to be absolutely negative. Dr. Wilson, in his excellent little handbook, gives indeed one table in which sundry meteorological data are recorded; and Mr. Dixey [11] gives the noon temperatures of an autumn voyage to New Zealand and of a spring voyage home; but the observations taken on one voyage could obviously not be used to settle the point at issue. It is evident that in order to afford such patients the full benefit of the change the practitioner must himself be in a position to advise as to which are the most suitable routes at particular seasons of the year from a meteorological point of view. Many patients are unfit to cope with extremes of temperature in the direction either of heat or cold, and it is therefore desirable, as far as the present state of meteorological science will admit, to spare them the discomfort, and in some instances the danger, of rough or uncertain weather. I have been struck by the inadequacy of the information actually available in respect of these conditions, the practitioner as well as the patient being reduced to mere conjecture in their selection of a particular route, trip or season. The consequence must necessarily be that patients are despatched more or less on chance, with results that may or may not prove to be satisfactory, good fortune entering largely into the problem so far as the suitability of the climatic conditions of the voyage is concerned. I found on inquiry that ocean steamers have for some time past, at the request of the Meteorological Office, kept an accurate log of the temperatures during each day of the voyage, and through the courtesy of the managing director of the Shaw, Savill and Albion Company I have been enabled to compile the following tables, which contain an amount of information with regard to the round-the-world voyage which has never before been at the command of the profession, and which I think will prove valuable to those in both medical and surgical practice who are called upon to advise on this matter. I do not propose in this paper to exhaust the tables by analysis, for they speak for themselves and the figures have been carefully checked by the logs of the various ships. The tables on pages 981 to 993 give the annual sailings between Plymouth and New Zealand for each of the years 1889, 1890, 1891, and for part of 1892, the voyage out being by the Cape of Good Hope and that home by Cape Horn. There is on an average one voyage for each lunar month, or thirty-nine in all. In the first column are placed the dates and the ports touched at, the second gives the noon temperatures as indicated by the dry bulb of the thermometer, whilst the last two columns refer to the force and direction of the wind. If it is desirable to break the voyage, the temperatures for each month of the year for three years at each of the ports of call are indicated, and thus a fair estimate of the climate at these places is possible. The tables on pages 994 and 995 contain a statement of the average noon temperature on each day, obtained by the addition of the temperature columns of the other tables for each month of the three years; it also gives the mean temperature for an outward and homeward voyage, beginning with each lunar month, and the mean temperature for the voyage round the world, supposing that the passenger comes home by the same ship from New Zealand. In consulting the tables it must be remembered that the temperatures are all taken in the open and that an addition of about 8° F. must be made to each to arrive at the approximate temperature in the saloons and cabins.

It has often been asserted that the voyage round the

[10] On the Beneficial Influence of Sea Voyages in some Forms of Disease, by Thomas B. Peacock, M.D. Medical Times and Gazette, vol. ii. 1873, p. 657.

[11] Sea Voyages for Health; by A. Crosbee Dixey, M.R.C.P. Edin. THE LANCET, vol. ii. 1888, p. 264.

world—out by the Cape of Good Hope and home by Cape Horn—is far too cold for ordinary health-seekers. So it undoubtedly was in the days of sailing ships alone and in the early days of steaming, when the "great circle sailing" route in the South was followed for the sake of shortening the course; but that this does not now hold good seems to be proved by the tables. Take, for instance, the November sailings of Steamer I. in 1889, of Steamer IV. in 1890, and of Steamer III. in 1891, and one cannot fail to observe the gradual and slight variation of the noon temperature on the whole voyage; indeed, one is struck by the extraordinary uniformity of the temperature averages throughout the year (*vide* statement of average noon temperatures), and there were very few days when the passengers were not able to enjoy themselves in the open air on deck. The extreme averages, in fact, do not vary by 10°. The lowest is that furnished by steamers leaving New Zealand in July, amounting to 55°, the average for the corresponding outward trip being 58°. The highest average temperature was attained by steamers leaving either side in December and January, being respectively 60° and 61° for the outward trip and 61° and 64° for the return journey. It will be seen from the tables that, contrary perhaps to expectation, if it is wished to secure the warmest round-world voyage, that is the highest series of mean temperatures, the start must be made from England about November; whilst in order to experience the coolest voyage (the lowest set of mean temperatures) one should set out from this country in May.

I should like to say a word here in defence of the employment of mean temperatures as an indication of climate at sea. It has often been objected that a mean temperature is worth nothing, inasmuch as the highest and lowest registration may fluctuate so greatly beyond and within it as to render it valueless as an indication; but this, as will be presently shown, does not apply with nearly such force to sea as to land temperatures, and the extreme amount of variation met with on a voyage will not be productive of personal discomfort in such well-found ships as are those of our first-class lines. Equability of temperature, as Dr. Wilson remarks, might seem to be incompatible with those changes of climate which are experienced between England and the southern limits of an Australian voyage; the equability referred to is principally that of the daily range—those sudden changes of temperature which are so frequent on shore, often amounting to 15 or 20 degrees in the twenty-four hours, and proving very trying to invalids, being almost unknown at sea, where the extreme daily limits of temperature are usually comprised within 3 or 4 degrees. The transition from the comparative cold of the English Channel to the heat of the tropics and back again to the cold weather south of the Cape, though great in itself, is accomplished by regular gradations, which are very different from the abrupt changes of our own climate. Thus, if a start is made from Plymouth on Jan. 27th (Voyage 27) with a noon temperature of 54°, the thermometer rises by gradations of two or three degrees daily to a maximum of 84° on or about the twelfth day of the voyage, gradually falling in the same steady, methodical manner to 66° at Cape Town and by the thirty-third day to 40°; the difference in the temperature on successive days, however, rarely exceeding a drop of from 2 to 3 degrees, though it is sometimes more than 5 degrees. From this point it once again begins to rise, reaching 67° at Hobart. These variations compare very favourably with the large oscillations which are usual in England. Starting from Plymouth, on the other hand, in July (Voyage 33) with a noon temperature of 61° the thermometer rises in the course of a week or ten days to 81°, then dropping by very slight gradations until the twenty-fourth day, after which the temperature oscillates between 40° and 50°. The extreme limits of temperature on the January outward journey (No. 27) are 40° and 84°, and on the July trip (No. 33) 35° and 81°.

I will now give a few indications of the way in which these rather formidable-looking tables can be used. Supposing a practitioner is asked to advise a patient as to a voyage to New Zealand, the start being contemplated in January and particulars as to the climate likely to be encountered being required. The statement of average temperatures would first be consulted, and from that the information is gleaned that the highest average temperature of 82° might be expected on about the tenth day out, that the temperature would not fall much below 45°, that the coldest part of the voyage would be at about ten days' distance from New Zealand, and that an average temperature of 61° on deck, or about 70° in the cabins and saloons, might be expected. For exceptional variations in temperature the list of voyages would then be turned to, and the January trips consulted (see Voyages 1, 13, 14, 26, 27, and 39), those in which the start was made on the day nearest to the proposed trip being especially studied. The outward voyage in January, 1889, for instance, is seen to have been exceptional in the rapidity of the rise of temperature after leaving Teneriffe, being no less than 20° in two days; but the comparison of these figures with those of Voyages 14 and 27, which were both begun on the same day of 1890 and 1891 respectively, will show that this is not to be expected as the rule. The same process of analysis can be applied to any particular month in which it is desired that a start should be made, and a reasonably accurate forecast can be given. In order to guide the choice of starting between two months in which the temperatures average much the same, attention should be paid to the observations on the wind, which will be found to vary considerably, but fairly regularly, in the different seasons. Another patient, for reasons of health or occupation, may desire to stay for a while in the colony and may seek for information as to the character of the voyage home after, say, three months' residence in the island. The tables will not only furnish this, but will also give a monthly temperature at the ports of call during his stay.

And this brings me to another use to which the tables can be put, though they were not designed with that intention. In reading the columns across there will be found thirty-nine indications of temperature at each of the principal places touched at; in the case of Teneriffe, indeed, there are seventy-eight observations, as each ship calls there both going out and coming home. The figures thus not only afford much information as to the climate of the ocean, but, with regard especially to Cape Town and Teneriffe, they indicate the most agreeable periods of sojourn there and when the port of Rio de Janeiro may be best avoided. These few words as to the method of use of the tables will serve to point out the practical value of them to the practitioner when giving advice, and to the patient when endeavouring to humour his health in his travels.

Much discussion has been carried on and much wordy warfare has been waged[12] as to the relative merits of sailing ships and steamers and it appears to me that the advantages of the sailing ship over the steamer have been greatly overrated. In most of the large steamers the cabin space is ample and is usually much more than was to be obtained in a sailing ship in olden days. The noise of the screw and the smell of engine oil are bogeys of the past. The immense advantage to the convalescing invalid is the superiority of the fare on board the steamers. Practically none of the sailing ships carry a refrigerator. They take on board a sheep, a pig, and a dozen of poultry for each passenger, which they kill as required, and they give him firkin butter. The steamer, on the other hand, is able to carry fresh fish, beef, mutton, game and poultry of all sorts, also fresh milk and butter, vegetables and fruit, an abundance for the entire voyage being kept fresh and sweet in the refrigerators. Finally, most of the steamers now carry surgeons who have held house appointments at our large hospitals and who are thoroughly qualified to take charge of anxious cases.

It ought not to be necessary to repeat that it is utterly wrong for a practitioner to send a case on board with concentrated physic, which either goes bad on the way or of which, as has more than once happened, the patient takes poisonous draughts with serious results. A personal consultation with the ship's surgeon should be sought, or, failing this, a courteous note of introduction should be sent, giving some short medical history of the case.

In conclusion, I have endeavoured to demonstrate the antiquity of ocean travelling as a means of cure, to illustrate by quotation the principles which were formerly believed to underlie the benefits wrought by the practice of voyaging for health, and to contribute some data which will be of interest to those who have to advise on the subject of round-world voyaging. I regret that I have at present only been able to deal with one steamship route, but I trust that the appended statistical tables and these few remarks upon them may incite others to tabulate similar information with regard to other routes which are available for the medical and surgical convalescent.

Chandos-street, W.

[12] THE LANCET, Aug. 23rd and 30th, and Sept. 13th, 1890.

ABSTRACT OF LOG OF STEAMERS BETWEEN ENGLAND AND NEW ZEALAND.—YEAR 1889.

VOYAGE 1.—STEAMER I.*

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1889.		Deg.		
January	26	—	—	—
Plymouth	27	54	3	West.
	28	54	4	S.W.
	29	56	6	"
	30	62	7	N.W.
Teneriffe	31	—	—	—
February	1	67	5	E.N.E.
	2	70	2	"
	3	68	3	N.E.
	4	77	4	"
	5	88	3	S.W.
	6	82	4	"
	7	83	5	S.E.
	8	81	5	"
	9	79	5	"
	10	76	5	"
	11	76	6	"
	12	74	6	"
	13	74	6	"
	14	70	4	"
	15	72	5	"
Cape Town	16	—	—	—
	17	74	6	S.W.
	18	72	4	"
	19	64	5	N.W.
	20	58	6	"
	21	50	5	S.E.
	22	42	3	N.E.
	23	44	3	S.E.
	24	37	5	"
	25	39	8	N.W.
	26	40	8	"
	27	45	6	"
	28	42	5	"
March	1	42	6	"
	2	43	6	"
	3	46	6	"
	4	50	10	N.E.
	5	48	4	N.W.
	6	54	6	"
Hobart	7	—	—	—
"	8	—	—	—
	9	56	7	W.S.W.
	10	58	7	"
Pt. Chalmers	11	62	7	"
	—	—	—	—
April	4	—	—	—
Lyttelton	5	52	4	S.W.
	6	50	5	"
	6	52	6	"
	7	50	6	"
	8	48	6	N.W.
	9	46	7	"
	10	47	5	"
	11	47	7	North.
	12	47	6	"
	13	45	8	N.W.
	14	43	6	S.W.
	15	45	8	N.W.
	16	44	7	"
	17	43	6	"
	18	44	7	West.
	19	59	3	N.E.
	20	60	5	"
	21	70	6	S.W.
	22	74	2	East.
Rio de Janeiro	23	—	—	—
"	24	—	—	—
	25	83	2	S.E.
	26	84	4	"
	27	82	3	"
	28	79	3	N.E.
	29	84	3	"
	30	79	3	"
May	1	80	4	"
	2	76	5	"
	3	71	5	"
	4	66	6	"
Teneriffe	5	68	6	"
"	6	—	—	—
	7	64	4	N.W.
	8	62	4	S.W.
	9	56	6	"
	10	56	5	"
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—

VOYAGE 2.—STEAMER III.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1889.		Deg.		
February	23	41	4	N.N.E.
Plymouth	24	45	5	East.
	25	46	6	"
	26	52	5	N.E.
	27	58	4	N.W.
Teneriffe	28	64	1	Various.
March	1	65	4	East.
	2	66	5	E.N.E.
	3	70	5	"
	4	76	2	North.
	5	82	0	Calm.
	6	83	3	S.S.E.
	7	82	4	South.
	8	81	4	S.S.E.
	9	80	3	"
	10	77	5	S. & E.
	11	73	4	South.
	12	72	5	S.S.E.
	13	71	5	"
	14	69	5	South.
	15	68	5	"
Cape Town	16	64	4	S.S.W.
	17	64	4	S.W. & W.
	18	66	4	W.N.W.
	19	60	4	N.W.
	20	54	5	North.
	21	49	6-2	N. & S.W.
	22	43	4	South.
	23	48	6	East.
	24	46	7	N.N.W.
	25	43	9	West.
	26	46	6	N.W.
	27	48	6	"
	28	46	5	West.
	29	47	4	N.W.
	30	48	4	North.
	31	47	3	S.E.
April	1	48	4	"
	2	52	5	E.S.E.
	3	54	6	N.E.
Hobart	4	62	6-1	Various.
"	5	60	4	North.
	6	61	4	"
		60	4	"
	8	60	4	N.W. & S.W.
Wellington	9	58	5	N.W.

STEAMER II.

May	17	—	—	—
Lyttelton	18	47	7	S.W.
	18	48	7	S.W.
	19	48	7	S.S.W.
	20	46	4	West.
	21	39	5	S.S.W.
	22	39	4	East.
	23	39	3	Various.
	24	38	4	"
	25	40	6	S.W.
	26	40	6	S.E.
	27	39	5	East.
	28	37	6	E.N.E.
	29	34	7	"
	30	33	6	"
	31	33	5	S.E.
June	1	35	4	East.
	2	36	4	South.
	3	37	3	S.E.
	4	40	5	S.W.
	5	58	5	W.N.W.
	6	60	5	North.
	7	63	4	Various.
	8	66	3	East.
	9	72	2	N.E.
Riode Janeiro	10	75	2	Various.
"	11	74	2	"
	12	75	2	North.
	13	76	3	"
	14	81	3	N.E.
	15	80	3	East.
	16	81	3	S.E.
	17	81	3	"
	18	83	1	"
	19	78	2	Various.
	20	73	4	N.E.
	21	70	5	"
	22	69	5	"
	23	68	3	"
Teneriffe	24	68	4	"
	25	68	3	North.
	26	65	3	"
	27	62	3	"
	28	61	3	"
	29	61	1	Calm.
Plymouth	30	—	—	—

VOYAGE 3.—STEAMER II.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1889.		Deg.		
March	23	—	—	—
Plymouth	24	51	3	W.N.W.
	25	52	4	North.
	26	55	4	N.N.E.
	27	58	3	"
Teneriffe	28	66	4	E.N.E.
	29	62	3	"
	30	70	4	N.E.
	31	70	3	N.N.W.
April	1	79	3	N.E.
	2	84	2	North.
	3	84	3	S.W.
	4	83	3	South.
	5	81	3	"
	6	80	3	"
	7	79	3	"
	8	74	4	S.S.E.
	9	72	4	"
	10	69	3	"
	11	69	4	S.W.
	12	66	5	South.
	13	67	3	Various.
Cape Town	14	57	4	N.E.
	15	69	6	West.
	16	66	6	N.W.
	17	49	4	S.W.
	18	46	3	North.
	19	41	7	N.N.E.
	20	43	7	"
	21	43	4	Various.
	22	36	4	W.S.W.
	23	35	3	West.
	24	38	2	Various.
	25	40	5	N.N.W.
	26	40	6	N.W.
	27	40	5	West.
	28	40	4	N.N.W.
	29	46	7	Various.
	30	49	5	West.
May	1	53	5	W.N.W.
Hobart	2	54	4	"
"	3	—	—	—
	4	51	5	S.W.
	5	52	5	West.
Otago	6	49	5	"
	—	—	—	—

STEAMER III.

May	30	53	2	S.E.
Wellington	31	46	5	South.
	31	46	7	S.W.
June	1	42	10	S.S.W.
	2	37	9	"
	3	40	7	S.W.
	4	40	4	Various.
	5	40	7	S.W.
	6	39	8	W.S.W.
	7	39	7	"
	8	39	6	"
	9	40	5	West.
	10	39	6	W.S.W.
	11	39	8	"
	12	38	8	"
	13	38	6	S.W.
	14	40	4	"
	15	47	7	South.
	16	52	6	"
	17	56	2	S.E., N.E.
	18	66	5	N.E.
	19	73	5	N. & W.
Rio de Janeiro	20	75	2	Various.
"	21	79	2	South.
	22	76	4	"
	23	78	3	S.E.
	24	80	5	East.
	25	80	5	S.E.
	26	82	5	"
	27	80	3	"
	28	80	2	N.E.
	29	78	4	"
	30	78	2	N.N.E.
July	1	76	5	"
	2	67	6	"
	3	70	7	"
	4	70	5	N.E.
Teneriffe	5	82	4	"
	6	69	5	"
	7	69	5	N.N.E.
	8	76	4	North.
	9	67	5	W.S.W.
	10	63	7	West.
Plymouth	11	58	2	South
	—	—	—	—

* The five steamships employed in this service are designated by Roman numerals, and with two exceptions (the second and third columns) each of the outgoing vessels made the next consecutive voyage home. In the second voyage Steamer III. was detained in New Zealand and Steamer II., starting earlier, made the home voyage in place of it. Steamer III. afterwards completed the third voyage.

NOTE.—Force of wind, 0 to 12. Noon temperature, dry thermometer.

ABSTRACT OF LOG OF STEAMERS BETWEEN ENGLAND AND NEW ZEALAND.—YEAR 1889.

VOYAGE 4.—STEAMER IV.

Place and date.		Noon Temp.	Wind. Force	Wind. Direction
1889.		Deg.		
April	20	—	—	—
Plymouth]	21	56	5	West.
	22	60	4	N.W.
	23	63	5	,,
	24	67	3	Various.
Teneriffe	25	55	3	N.E.
	26	70	4	East.
	27	68	5	N.E.
	28	75	2	N.N.E.
	29	92	3	West.
	30	92	3	South.
May	1	86	5	S.S.E.
	2	81	5	,,
	3	88	5	,,
	4	82	5	,,
	5	78	5	,,
	6	74	6	,,
	7	69	6	,,
	8	68	6	,,
	9	67	6	,,
	10	67	5	South.
	11	67	5	S.S.E.
Cape Town	12	70	2	S.E.
	13	76	2	N.N.W.
	14	66	4	E.N.E.
	15	60	4	S.W.
	16	53	3	Various.
	17	45	4	S.W.
	18	41	3	South.
	19	42	2	Various.
	20	54	3	N.W.
	21	54	6	S.W.
	22	47	5	,,
	23	42	4	S.S.E.
	24	41	4	East.
	25	46	9	S.E.
	26	42	7	E.S.E.
	27	49	6	S.S.E.
	28	49	6	,,
	29	51	5	East.
	30	51	6	,,
	31	52	6	,,
June	1	54	7	E.N.E.
	2	55	6	N.E.
	3	54	7	,,
Hobart	4	56	6	Various.
,,	5	54	6	N.W.
	6	53	4	S.E.
	7	59	3	E.S.E.
	8	57	5	S.E.
	9	58	4	S.W.
Wellington	10	58	5	,,
June	27	—	—	—
Wellington]	28	51	5	East.
	28	47	4	N.E.
	29	45	3	North.
	30	47	3	W.N.W.
July	1	44	6	S.E.
	2	47	5	N.N.E.
	3	47	6	N.W.
	4	45	5	N.N.W.
	5	42	3	West.
	6	41	2	Various.
	7	43	2	,,
	8	34	9	S.S.W.
	9	36	8	South.
	10	36	8	East.
	11	27	6	,,
	12	36	4	West.
	13	40	6	S.E.
	14	42	6	S.W.
	15	53	6	West.
	16	59	4	,,
	17	69	5	N.E.
Rio de Janeiro	18	84	6	,,
,,	19	82	0	Calm.
	20	76	2	N.E.
	21	77	2	E.S.E.
	22	78	3	,,
	23	78	5	,,
	24	81	5	,,
	25	86	5	,,
	26	75	4	South.
	27	83	4	N.E.
	28	83	4	N.N.E.
	29	76	4	,,
Teneriffe	30	75	3	Various.
	31	76	4	N.E.
August	1	78	4	North.
	2	69	3	N.W.
	3	66	4	Various.
Plymouth	4	64	3	,,

VOYAGE 5.—STEAMER V.

Place and date.		Noon Temp.	Wind. Force	Wind. Direction.
1889.		Deg.		
May	18	55	3	W.N.W.
Plymouth]	19	54	2	N.W. by W.
	20	60	3	N.E.
	21	61	2	N.W.
	22	67	4	S.S.W.
Teneriffe	23	67	4	S.W.
	24	70	4	W.N.W.
	25	74	3	N.N.E.
	26	70	4	N.E.
	27	78	2	N.
	28	82	2	S.S.W.
	29	80	3	S. by E.
	30	80	4	S.S.E.
	31	79	4	S.
June	1	77	4	S.S.E.
	2	73	5	S.E.
	3	68	5	,,
	4	68	4	S.
	5	66	4	S. by E.
	6	60	4	S.E. by S.
	7	59	3	S.W.
Cape Town	8	58	7	S.S.W.
	9	54	2	S.E.
	10	49	7	W.S.W.
	11	49	6	W.N.W.
	12	47	6	W.
	13	41	4	N.
	14	44	5	N. by W.
	15	47	4	N.N.W.
	16	47	6	North.
	17	47	7	,,
	18	45	4	N.N.W.
	19	45	6	W.S.W.
	20	44	5	N.N.W.
	21	48	5	West.
	22	44	3-2	S.W.
	23	43	1	West.
	24	44	2-3	S.W.
	25	46	4	S.S.E.
	26	49	4-3	S.S.W.
Hobart	27	50	1-2	Various.
	28	49	3-4	N. by W.
Pt. Chalmers	29	45	4	N.N.W.
	30	47	4	N.W.
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
July	25	59	3	West.
Wellington]	26	51	4	North.
	26	46	6	S.W.
	27	44	6	W.S.W.
	28	36	6	S.W.
	29	31	3	E.S.E.
	30	31	2	S.W.
	31	34	3	S. by E.
August	1	34	6	S. by W.
	2	40	6	S.W. by S.
	3	36	6	S.S.E.
	4	32	5	S. by E.
	5	31	6	S.E.
	6	34	8	S.E. by E.
	7	24	7	S.E. by S.
	8	23	4	S. by E.
	9	33	5	S.S.W.
	10	36	7	South.
	11	36	6	S.S.W.
	12	47	3	S.W.
	13	52	4	S.E.
	14	64	6	Various.
	15	67	4	S. by W.
Rio de Janeiro	16	72	1	N.E.
	17	75	2	Various.
	18	74	4	,,
	19	76	4	E.S.E.
	20	78	4	,,
	21	80	3	,,
	22	78	4	S.E. by E.
	23	82	3	S.W.
	24	80	2	N.W. by N.
	25	80	3	E.S.E.
	26	76	2	East.
	27	78	6	E.N.E.
Teneriffe	28	72	2	Various.
	19	73	2	N. by W.
	30	69	3	N.W. by W.
	31	66	3	N.W.
September	1	64	3	South.
Plymouth]				

VOYAGE 6.—STEAMER I.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1889.		Deg.		
June	15	—	—	—
Plymouth]	16	62	2	N.W.
	17	65	3	W.N.W.
	18	66	4	N.W.
	19	68	2	W.S.W.
Teneriffe	20	70	5	N.E.
	21	70	1	,,
	22	76	1-2	N.N.E.
	23	78	2-4	Various.
	24	78	2-6	S.E.
	25	80	2-6	,,
	26	82	2-6	,,
	27	82	4	,,
	28	77	4	,,
	29	76	3	,,
	30	76	3	,,
July	1	76	3	,,
	2	76	3	,,
	3	76	2	,,
	4	64	2	,,
	5	62	2	,,
Cape Town	6	60	Var.	Various.
	7	60	,,	,,
	8	58	4	S.W.
	9	50	6	,,
	10	54	6	W.N.W.
	11	52	4-7	S.E.
	12	48	4-7	to
	13	46	7	N.W.
	14	44	8	to
	15	42	8-6	N.E.
	16	40	8-6	to
	17	44	6-8	S.W.
	18	44	6-8	to
	19	42	8-4	W.N.W.
	20	42	8-4	to
	21	42	6	W.S.W.
	22	46	8	to
	23	48	6	N.W.
	24	50	8	W.S.W.
Hobart	25	50	6	,,
,,	26	56	—	,,
	27	54	4	N.W.
	28	52	2	,,
	29	51	4	S.E.
Wellington	30	54	9	E.S.E.
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
August	22	—	—	—
Wellington]	23	54	4-8	N.W.
	23	53	4-8	to
	24	52	4-8	W.N.W.
	25	48	8 12	to
	26	48	8-12	W.S.W.
	27	46	12-8	to
	28	44	12-8	S.W.
	29	42	8-10	to
	30	42	10-8	N.W.
	31	40	10 8	to
September	1	40	8-6	W.S.W.
	2	40	8-6	to
	3	38	6-7	W.N.W.
	4	38	6-7	to
	5	42	6-7	N.W.
	6	46	7	,,
	7	48	7	,,
	8	50	7	,,
	9	58	Var.	Various.
	10	66	,,	,,
Rio de Janeiro	11	66	—	—
,,	12	70	4	N.E.
	13	78	4	,,
	14	80	4	,,
	15	82	4	,,
	16	82	4	,,
	17	84	4	,,
	18	84	4	,,
	19	86	4	,,
	20	84	4	Various.
	21	80	4	,,
	22	78	4	,,
Teneriffe	23	76	4	,,
,,	24	76	—	—
	25	74	4-8	N.W.
	26	70	4-8	to
	27	60	4-8	N.E.
Plymouth	28	56	6	Various.
	—	—	—	—

NOTE.—Force of wind 0 to 12. Noon temperature, dry thermometer.

ABSTRACT OF LOG OF STEAMERS BETWEEN ENGLAND AND NEW ZEALAND.—YEAR 1889.

VOYAGE 7.—STEAMER II.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1889.		Deg.		
July	13	—	—	—
Plymouth	14	61	3	N.W.
	15	66	3	N.E.
	16	66	3	North.
	17	72	3	N.E.
Tenerife	18	74	4	"
	19	80	5	N.N.E.
	20	74	3	N.E.
	21	80	2	Various.
	22	83	2	West.
	23	80	4	S.W.
	24	81	4	"
	25	77	4	South.
	26	74	3	S.S.E.
	27	74	4	"
	28	72	4	"
	29	70	4	"
	30	66	5	"
	31	63	5	South.
August	1	62	5	"
	2	59	4	"
	3	59	5	N.N.E.
Cape Town	4	54	7	West.
"	5	58	6	W.S.W.
	6	61	6	West.
	7	57	6	"
	8	44	6	"
	9	46	8	N.W.
	10	37	7	"
	11	44	9	North.
	12	34	9	W.N.W.
	13	37	6	"
	14	35	5	"
	15	34	4	West.
	16	38	4	"
	17	38	3	"
	18	39	3	S.W.
	19	42	4	"
	20	42	4	"
	21	42	5	S.S.W.
	22	44	5	S.W.
Hobart	24	50	3	"
	24	50	3	Various.
	25	47	4	S.W.
	26	46	4	S.S.W.
	27	48	4	South.
Otago	28	—	—	—
September	19	—	—	—
Wellington	20	49	5	S.W.
	20	41	7	"
	21	40	7	S.S.W.
	22	41	4	Variable.
	23	37	6	S.W.
	24	34	6	"
	25	42	5	W.S.W.
	26	40	6	"
	27	39	7	"
	28	37	5	"
	29	36	6	South.
	30	38	6	W.S.W.
October	1	39	6	S.W.
	2	40	4	West.
	3	40	6	S.S.W.
	4	40	5	N.W.
	5	44	4	"
	6	46	3	"
	7	56	3	N.E.
	8	61	4	East.
	9	66	2	"
	10	71	2	"
Rio de Janeiro	11	76	—	—
"	31	72	3	South.
November	1	74	3	S.S.E.
	2	77	3	N.E.
	3	78	3	East.
	4	79	3	"
	5	79	3	"
	6	79	3	"
	7	77	4	"
	8	81	4	"
	9	78	4	N.E.
	10	74	3	"
	11	72	3	"
	12	69	2	Various.
	13	70	3	N.N.E.
Tenerife	14	68	3	N.E.
	15	68	3	"
	16	67	3	Various.
	17	65	3	East.
	18	60	3	"
	19	56	4	"
Plymouth	20	50	3	"

VOYAGE 8.—STEAMER III.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1889.		Deg.		
August	10	—	—	—
Plymouth	11	69	7-8	W.N.W.
	12	74	3-5	North.
	13	73	5	N.E.
	14	69	6-7	"
Tenerife	15	72	4-6	E.N.E.
	16	78	5	"
	17	81	4	"
	18	77	0	Calm.
	19	77	2	Various.
	20	76	2-4	S.W. & S.
	21	73	5	S.W.
	22	74	5	S.S.W. & S.S.E.
	23	71	5	S.S.E.
	24	65	5	"
	25	63	5	S.S.E. & E.
	26	60	5	South.
	27	57	5-6	S.S.E.
	28	57	2-4	S.S.E. to S.W.
	29	58	4	S.W.
Cape Town	30	58	2-0	West & Calm.
"	31	56	5-7	N.W.
September	1	64	6-8	W.N.W.
	2	69	4-5	N.W. to S.W.
	3	42	4	S.W. & W.
	4	41	4-7	N. & N.E.
	5	40	7-5	N.E. to N.W.
	6	43	5	N.W.
	7	42	6-8	"
	8	41	7-5	"
	9	38	5-7	S.S.W.
	10	41	5-4	S.W.
	11	43	4-6	N.W.
	12	46	5	N.N.W.
	13	40	7-5	S.W.
	14	49	2-5	S.W. to N.W.
	15	52	4	West.
	16	45	1	"
	17	46	1-2	"
Hobart	18	45	3-6	S.S.E.
"	19	46	1-6	Various.
	20	47	6	S.S.W.
	21	47	5	"
Pt. Chalmers	22	51	5-6	"
	—	—	—	—
	—	—	—	—
	—	—	—	—
October	17	—	—	—
Wellington	18	51	3-4	N.E.
	18	49	5	N. & N.W.
	19	52	5-6	N.W. & S.W.
	20	48	6	W.N.W.
	21	42	7-8	N.N.W.
	22	33	8-6	N.W. & S.W.
	23	41	6-7	W.N.W.
	24	42	6	"
	25	36	6	W.N.W. & S.E.
	26	37	6	South.
	27	45	5	S.W.
	28	48	5-6	"
	29	48	3-5	"
	30	44	6	W.S.W.
	31	45	4	West.
November	1	46	Var.	Various.
	2	50	3	West.
	3	59	4-6	W.S.W.
	4	65	5-2	S.S.W.
	5	60	2-4	N.E.
	6	76	4-0	"
Rio de Janeiro	7	—	—	—
	8	76	2-4	Various.
	9	78	2	"
	10	81	4	North.
	11	82	3	E.N.E.
	12	80	4	"
	13	81	4	S.E.
	14	81	2	Various.
	15	83	4	N.E.
	16	81	4	"
	17	79	4	"
	18	71	5	"
	19	70	4	"
Tenerife	20	73	5	Various.
	21	68	4	E. & S.E.
	22	68	4	S.E.
	23	64	4	South.
Plymouth	24	56	5	N.W.
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—

VOYAGE 9.—STEAMER IV.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1889.		Deg.		
September	14	60	1	South.
Plymouth	15	62	2	East.
	16	67	5	"
	17	69	1	North.
	18	71	2	N.W.
Tenerife	19	73	2	W.S.W.
	20	75	2	Various.
	21	75	2	"
	22	80	2	"
	23	82	2	"
	24	80	4	S.W.
	25	78	2	"
	26	75	5	S.S.E.
	27	73	5	"
	28	71	5	S.E.
	29	66	5	"
	30	66	6	S.S.E.
October	1	62	6	S.E.
	2	60	6	S.S.E.
	3	58	6	S.S.W.
Cape Town	4	62	4	South.
"	5	60	6	Various.
	6	64	6	E.S.E.
	7	58	6	E.N.E.
	8	54	6	"
	9	48	6	N.N.E.
	10	44	1	Various.
	11	40	1	"
	12	50	1	"
	13	44	1	"
	14	44	6	S.W.
	15	39	8	"
	16	45	5	Various.
	17	47	2	"
	18	48	2	"
	19	49	4	"
	20	50	4	N.N.E.
	21	51	3	North.
	22	51	3	N.N.W.
Hobart	23	54	3	West.
"	24	59	3	Various.
	25	53	5	South.
	26	50	5	N.W.
	27	52	8	"
Lyttelton	28	52	4	N.N.E.
	—	—	—	—
	—	—	—	—
November	14	—	—	—
Wellington	15	53	2	S.E.
	15	52	2	Various.
	16	51	4	N.N.W.
	17	47	6	Various.
	18	45	6	N.W.
	19	46	6	N.N.W.
	20	47	5	W.S.W.
	21	46	5	N.W.
	22	45	4	Various.
	23	48	4	West.
	24	43	4	S.W.
	25	44	5	West.
	26	46	4	Various.
	27	43	3	North.
	28	40	3	East.
	29	42	4	S.W.
	30	49	3	Various.
December	1	55	4	N.N.W.
	2	66	4	Various.
	3	71	4	E.N.E.
	4	80	3	North.
	5	78	5	N.N.E.
Rio de Janeiro	6	—	—	—
"	7	84	3	Various.
	8	79	5	North.
	9	80	5	N.E.
	10	80	4	East.
	11	80	5	E.S.E.
	12	79	5	"
	13	85	3	East.
	14	80	4	Various
	15	80	4	N.N.E.
	16	73	5	North.
	17	68	5	N.N.E.
	18	63	5	East.
Tenerife	19	64	4	N.E.
	20	62	3	N.N.E.
	21	60	5	N.N.E.
	22	57	4	Various.
	23	57	4	S.E.
Plymouth	24	57	6	South.
	—	—	—	—
	—	—	—	—
	—	—	—	—

NOTE.—Force of wind, 0 to 12. Noon temperature, dry thermometer.

ABSTRACT OF LOG OF STEAMERS BETWEEN ENGLAND AND NEW ZEALAND.—YEARS 1889, 1890.

VOYAGE 10.—STEAMER V.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
	1889.	Deg.		
	October 5	53	4	West.
Plymouth	6	60	3	N.W.
	7	62	3	W.N.W.
	8	70	4	N.W.
	9	78	3	North.
Teneriffe	10	76	6	East.
	11	73	5	"
	12	80	5	E.N.E.
	13	83	5	N.E.
	14	81	3	West.
	15	79	2	Various.
	16	78	3	S.S.W.
	17	76	2	S. by W.
	18	69	3	S. by E.
	19	68	4	S.S.E.
	20	64	4	S.E. by S.
	21	60	5	S.S.E.
	22	59	6	S.S.W.
	23	60	4	W.S.W.
	24	60	2	Various.
Cape Town	25	61	4	S. by W.
	26	66	4	E.S.E.
	27	62	2	S.E.
	28	54	4	N.E. by E.
	29	50	6	W.S.W.
	30	40	6	West.
	31	45	7	N.W.
	November 1	40	5	S.W.
	2	44	4	West.
	3	42	4	W. by S.
	4	46	5	W.N.W.
	5	45	7	W. by S.
	6	44	5	N.W.
	7	47	7	W.S.W.
	8	45	7	W. by N.
	9	46	7	W.S.W.
	10	52	6	"
	11	51	5	N.W.
Hobart	12	57	5	West.
"	13	58	2	Various.
	14	50	3	S.E.
	15	46	4	S. by E.
Otago	16	50	4	S.W.
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	1889.			
	December 12	64	5	N.W.
Wellington	13	57	4	N.E.
	13	55	2	South.
	14	55	4	N. by E.
	15	48	2	"
	16	46	4	E.N.E.
	17	44	3	N. by E.
	18	41	2	North.
	19	42	3	"
	20	45	5	N.W. by N.
	21	47	6	W.N.W.
	22	43	6	S.W.
	23	42	7	W.S.W.
	24	43	7	S.W.
	25	43	6	W.S.W.
	26	44	4	N.W.
	27	47	4	Various.
	28	52	4	West.
	29	59	3	N.W.
	30	60	3	W.S.W.
	31	74	2	S.E.
	1890.			
	January 1	76	5	E.S.E.
Rio de Janeiro	2	76	2	Various.
"	3	75	3	E.N.E.
	4	81	4	N. by E.
	5	81	2	East.
	6	80	4	E.S.E.
	7	80	5	S.E.
	8	80	4	"
	9	78	4	"
	10	77	4	N.N.E.
	11	73	5	Various.
	12	69	6	E.S.E.
	13	65	6	East.
	14	62	4	S.E. by E.
	15	64	4	"
Teneriffe	16	69	5	East.
	17	62	4	E.N.E.
	18	58	4	N.W.
	19	60	4	West.
	20	51	7	W.S.W.
Plymouth	21	51	7	West.
	—	—	—	—
	—	—	—	—
	—	—	—	—

VOYAGE 11.—STEAMER I.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
	1889.	Deg.		
	November 2	—	—	—
Plymouth	3	58	6	West.
	4	59	5	"
	5	67	3	"
	6	70	4	N.E.
Teneriffe	7	—	—	—
	8	78	—	East.
	9	78	4	N.N.E.
	10	84	2	N.W.
	11	82	2	East.
	12	84	4	S.S.E.
	13	80	4	South.
	14	79	4	S.S.E.
	15	74	4	"
	16	72	4	"
	17	70	6	S.E.
	18	69	5	"
	19	68	4	"
	20	66	4	"
	21	66	3	South.
	22	66	3	S.W.
Cape Town	23	—	—	—
	24	68	3	S.S.W.
	25	62	6	N.W.
	26	62	5	"
	27	53	3	Various.
	28	48	5	N.N.W.
	29	45	5	North.
	30	49	7	S.W.
	December 1	44	5	"
	2	45	4	N.W.
	3	39	3	N.E.
	4	44	7	S.W.
	5	44	7	"
	6	46	5	West.
	7	48	5	N.
	8	47	5	N.N.E.
	9	51	6	N.N.W.
	10	52	5	"
Hobart	11	—	—	—
"	12	—	—	—
	13	60	5	N.N.E.
	14	60	6	North.
	15	62	5	N.N.W.
Wellington	16	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	1890.			
	January 9	—	—	—
Wellington	10	56	9	S.W.
	10	62	6	N.W.
	11	60	5	"
	12	60	5	"
	13	58	4	"
	14	50	3	North.
	15	50	2	S.W.
	16	42	5	S.S.W.
	17	44	4	"
	18	42	2	Variable.
	19	44	1	S.W.
	20	46	1	S.E.
	21	48	4	"
	22	49	3	North.
	23	49	5	N.W.
	24	60	3	"
	25	64	3	South.
	26	64	3	N.N.W.
	27	72	5	West.
	28	76	5	N.N.E.
	29	82	5	N.E.
Rio de Janeiro	30	—	—	—
"	31	—	—	—
	February 1	79	3	East.
	2	87	3	N.E.
	3	82	4	"
	4	80	4	East.
	5	80	4	"
	6	80	4	N.E.
	7	76	4	"
	8	74	4	"
	9	67	4	"
	10	66	2	"
	11	58	4	East.
Teneriffe	12	—	—	—
	13	62	3	East.
	14	58	5	South.
	15	52	5	North.
	16	50	5	S.W.
Plymouth	17	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—

VOYAGE 12.—STEAMER II.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
	1889.	Deg.		
	December 14	—	—	—
Plymouth	15	50	4	S.W.
	16	52	4-2	E.N.E.
	17	60	5-4	S.E.
	18	64	5	E.S.E.
Teneriffe	19	62	3	"
	20	67	4-5	"
	21	64	6	"
	22	70	7	"
	23	78	4	S.E. by E.
	24	84	5	East.
	25	80	3	South.
	26	81	3-4	S.E.
	27	79	4	S.S.E.
	28	77	5	South.
	29	74	5	S.S.E.
	30	76	6-4	"
	31	73	4	"
	1890.			
	January 1	72	4-5	"
	2	68	5	S. by E.
	3	67	4	South.
	4	67	4-3	S.S.W.
	5	65	4	Various.
Cape Town	6	64	5	South.
	7	70	7	E.N.E.
	8	64	3	West.
	9	54	6	South.
	10	56	5-4	East.
	11	52	4	North.
	12	38	6-4	S.S.W.
	13	40	3	S.S.E.
	14	37	3	E.S.E.
	15	34	2	Variable.
	16	33	5	S.W.
	17	36	6-7	W.S.W.
	18	40	4	"
	19	42	7	North.
	20	56	6	West.
	21	49	7	"
	22	55	6	"
	23	55	5	"
	24	66	5	"
Hobart	25	58	1	Variable.
"	26	67	4	S.E.
	27	62	4	North.
	28	64	5	"
	29	62	5	N.W.
Wellington	30	60	3	East.
	31	—	—	—
	1890.			
	February 20	—	—	—
Lyttelton	21	56	4	N.
	21	51	4	S.W.
	22	48	6	"
	23	52	3	Various.
	24	49	6	N.W.
	25	43	7	W.S.W.
	26	41	6	W.
	27	42	7	"
	28	45	6	W.N.W
	March 1	46	6	West.
	2	44	7-8	W.S.W
	3	44	6	"
	4	36	6	West.
	5	34	5	South.
	6	39	5-7	S.W.
	7	44	6	West.
	8	46	4	W.S.W.
	9	50	5-6	South.
	10	60	6-7	W.N.W.
	11	65	5	N.N.W.
	12	74	4	North.
	13	73	4	N.E.
	14	79	4-6	"
Rio de Janeiro	15	95	—	—
"	16	76	3	N.E.
	17	81	4	"
	18	82	5	E.S.E.
	19	81	4-5	E. by S.
	20	75	4	S.E. by E.
	21	81	4	East.
	22	84	4	"
	23	80	3	"
	24	80	4	"
	25	78	4	N.E.
	26	76	4	"
	27	70	4	"
	28	64	4	North.
	29	64	4	"
Teneriffe	30	63	4	"
	31	61	4	N.W.
	April 1	60	3	North.
	2	56	5	N.N.W.
	3	54	5	N.N.E.
	4	52	5	N.E.
Plymouth	5	48	3	North.

NOTE.—Force of wind, 0 to 12. Noon temperature, dry thermometer.

ABSTRACT OF LOG OF STEAMERS BETWEEN ENGLAND AND NEW ZEALAND.—YEAR 1890.

VOYAGE 13.—STEAMER III.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1889.		Deg.		
December	29	—	—	—
Plymouth]	30	45	4	S.E.
	31	48	4	,,
1890.				
January	1	52	4	East.
	2	60	5	West.
Teneriffe	3	61	4	,,
	4	68	3	Various.
	5	65	5	East.
	6	69	5	E.N.E.
	7	75	3	N.E.
	8	80	2	,,
	9	80	2	Various.
	10	76	2	,,
	11	76	4	South.
	12	76	5	S.S.E.
	13	74	5	,,
	14	71	5	South.
	15	69	6	,,
	16	67	6	S.S.E.
	17	65	7	South.
	18	65	6	S.S.W.
Cape Town	19	52	6	,,
	20	65	4	South.
	21	66	0	Calm.
	22	63	4	N.E.
	23	55	5	North.
	24	51	4	,,
	25	46	0	Calm.
	26	48	4	N.W.
	27	45	6	West
	28	43	7	,,
	29	41	8	,,
	30	43	7	W.S.W.
	31	45	4	West.
February	1	47	3	Various.
	2	48	6	N.E.
	3	51	3	North.
	4	54	2	,,
	5	58	2	,,
Hobart	6	66	2	,,
,,	7	—	—	—
	8	61	3	Various.
	9	61	4	N.W.
	10	55	0	Calm.
Pt. Chalmers	11	55	0	,,
	—	—	—	—
	—	—	—	—
March	6	—	—	—
Lyttelton]	7	57	2	North.
	7	53	3	Various.
	8	51	5	S.W.
	9	48	6	W.S.W.
	10	47	7	W.N.W.
	11	47	5	West.
	12	43	5	W.S.W.
	13	42	5	,,
	14	44	7	West.
	15	44	7	,,
	16	43	6	W. by S.
	17	44	6	West.
	18	44	7	W.N.W.
	19	44	7	West.
	20	45	6	,,
	21	48	4	,,
	22	51	4	North.
	23	59	6	N.W.
	24	63	8	S.W. by W.
	25	70	3	S.W.
	26	75	3	S.E.
Rio de Janeiro	27	—	—	—
,,	28	—	—	—
	29	79	4	Various.
	30	80	5	N.N.E.
	31	80	4	,,
April	1	81	4	East.
	2	83	4	E.S.E.
	3	80	4	,,
	4	77	4	N.E.
	5	78	5	,,
	6	75	5	,,
	7	71	5	N.N.E.
	8	67	4	,,
	9	66	4	N. by E.
Teneriffe	10	65	4	N.N.W.
,,	11	—	—	—
	12	60	4	N.N.E.
	13	58	6	N.N.W.
	14	53	7	N.W.
	15	52	4	West.
Plymouth	16	52	4	East.

VOYAGE 14.—STEAMER IV.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1890.		Deg.		
January	26	51	8	Variable.
Plymouth]	27	54	8	W.S.W.
	28	55	8	S.W.
	29	56	5	W.N.W.
	30	56	3	Variable.
Teneriffe	31	64	4	E.N.E.
February	1	64	3	N.E.
	2	64	4	E.N.E.
	3	64	3	N.E.
	4	68	2	N.N.E.
	5	78	1	Variable.
	6	81	2	West.
	7	78	4	Variable.
	8	80	4	South.
	9	79	5	S.S.E.
	10	77	4	S.E.
	11	77	4	,,
	12	74	5	,,
	13	75	5	,,
	14	73	1	,,
	15	71	1	Variable.
Cape Town	16	74	2	,,
,,	17	—	—	—
	18	70	2	East.
	19	67	1	Variable.
	20	63	7	S.E.
	21	56	7	,,
	22	55	4	,,
	23	51	5	E.S.E.
	24	53	4	Variable.
	25	55	5	West.
	26	50	2	Variable.
	27	49	3	N.N.E.
	28	49	4	N.N.W.
March	1	50	6	W.N.W.
	2	49	5	West.
	3	45	7	W.S.W.
	4	47	4	West.
	5	51	2	Variable.
	6	53	4	N.W.
	7	55	3	North.
Hobart	8	62	0	Calm.
,,	9	62	0	,,
	10	66	6	N.N.E.
	11	66	6	,,
	12	67	5	North.
	13	68	4	N.N.W.
Auckland	14	76	3	W.S.W.
April	3	52	4	S.E.
Lyttelton]	4	56	5	Various.
	4	54	8	W.S.W.
	5	53	8	,,
	6	46	6	W.N.W.
	7	46	7	S.W.
	8	43	Var.	Various.
	9	41	3	South.
	10	46	8	W.N.W.
	11	45	Var.	N.W.
	12	43	9	W.N.W.
	13	44	7	W.S.W.
	14	45	3	Various.
	15	44	6	North.
	16	46	4	West.
	17	45	5	,,
	18	55	7	,,
	19	60	4	W.S.W.
	20	65	4	S.W.
	21	70	7	W.S.W.
	22	70	3	,,
	23	70	2	N.E.
Rio de Janeiro	24	74	2	,,
,,	25	78	0	Various.
	26	79	3	S.S.E.
	27	81	7	,,
	28	82	7	S.E.
	29	85	7	,,
	30	81	6	Various.
May	1	81	6	N.E.
	2	79	5	,,
	3	77	5	North.
	4	73	5	,,
	5	72	6	,,
Teneriffe	6	71	6	,,
,,	7	71	3	,,
	8	63	3	,,
	9	67	3	N.N.W.
	10	59	3	W.S.W.
	11	60	3	,,
Plymouth	12	64	2	East.
	—	—	—	—
	—	—	—	—

VOYAGE 15.—STEAMER V.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1890.		Deg.		
February	22	48	2	N.E.
Plymouth]	23	48	5	E.N.E.
	24	50	6	S.E.
	25	57	5	West.
	26	64	3	North.
Teneriffe	27	69	3	East.
	28	68	2	N.N.E.
March	1	70	3	Variable.
	2	70	4	N.E.
	3	81	3	North.
	4	82	3	Variable.
	5	83	3	S. by E.
	6	80	4	S.S.E.
	7	81	4	S. by E.
	8	77	4	,,
	9	70	3	,,
	10	73	4	South.
	11	70	5	S. by E.
	12	64	5	S.S.E.
	13	67	4	South.
Cape Town	14	52	3	W.S.W.
	15	70	3	N.W.
	16	66	1	Variable.
	17	61	5	N.E.
	18	56	4	,,
	19	48	5	N.E. by N.
	20	44	4	S.S.W.
	21	45	3	S.W.
	22	42	4	Variable.
	23	56	7	North.
	24	51	6	Variable.
	25	49	5	North.
	26	46	3	N.N.W.
	27	53	7-8	N. by W.
	28	53	7-6	,,
	29	56	6	N.N.W.
	30	57	6	,,
	31	54	3	Variable.
April	1	57	6-7	W.N.W.
Hobart	2	60	5	S.W.
	3	58	5-4	W.S.W.
	4	61	4	S.S.W.
	5	64	4	,,
Wellington	6	63	5-3	Various.
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
May	1	56	3	N.E.
Lyttelton]	2	50	4	N.N.E.
	2	52	5	North.
	3	50	5	S.W.
	4	45	6	N.W.
	5	45	5	N.N.W.
	6	42	5	N.W.
	7	38	6	W.N.W.
	8	43	5	N.W.
	9	43	5	W.N.W.
	10	39	8	W.S.W.
	11	43	8	W. by S.
	12	40	7	South.
	13	38	6	,,
	14	33	8	S.W.
	15	32	8	,,
	16	32	5	South.
	17	42	7	S.W.
	18	52	8	,,
	19	54	6	,,
	20	66	4	W.S.W.
Rio de Janiero	21	71	3	N.E.
,,	22	70	2	Variable.
	23	82	4	S.E.
	24	75	5	,,
	25	80	4	Variable.
	26	80	5	E.S.E.
	27	81	4	,,
	28	80	4	S.E.
	29	77	2-3	N.E.
	30	72	3	East.
	31	69	3	N.E.
June	1	69	5	N.N.E.
	2	70	5	N.E.
Teneriffe	3	68	4	,,
	4	63	4	N.E. by E.
	5	62	3	E.N.E.
	6	61	3	N.W.
	7	54	2	S.W.
Plymouth	8	—	—	—
	—	—	—	—
	—	—	—	—

NOTE.—Force of wind, 0 to 12. Noon temperature, dry thermometer.

ABSTRACT OF LOG OF STEAMERS BETWEEN ENGLAND AND NEW ZEALAND.—YEAR 1890.

VOYAGE 16.—STEAMER I.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1890.		Deg.		
March	22	—	—	—
Plymouth]	23	53	6	West.
	24	56	8	,,
	25	57	6	,,
	26	63	4	Variable.
Teneriffe	27	66	3	West.
	28	67	3	,,
	29	73	3	N.E.
	30	74	4	North.
	31	74	5	,,
April	1	76	2	,,
	2	79	0-2	Variable.
	3	84	3	S.E.
	4	82	4	,,
	5	80	5	,,
	6	77	6	,,
	7	73	6	,,
	8	72	4	,,
	9	68	3	,,
	10	70	3	S.W.
	11	65	5	South.
Cape Town	12	60	5	,,
	13	65	3	,,
	14	60	6	N.W.
	15	55	7	S.W.
	16	52	4	Variable.
	17	48	4	West.
	18	42	5	South.
	19	42	3	,,
	20	43	3	West.
	21	40	5	S.W.
	22	42	6	,,
	23	47	6	,,
	24	43	6	West.
	25	44	6	,,
	26	42	4	Variable.
	27	44	7	West.
	28	45	7	,,
	29	48	6	,,
Hobart	30	56	4	N.W.
May	1	57	3	West.
	2	53	4	S.W.
	3	54	4	,,
	4	55	3	South.
	5	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
May	29	—	—	—
Wellington]	30	56	6	South.
	30	50	5	S.E.
	31	50	8	,,
June	1	52	6	East.
	2	50	7	North.
	3	48	6	,,
	4	47	6	N.W.
	5	46	4	West.
	6	46	4	N.W.
	7	46	3	,,
	8	44	4	,,
	9	39	7	,,
	10	35	8	South.
	11	40	6	,,
	12	37	4	,,
	13	43	6	N.W.
	14	44	5	,,
	15	52	4	,,
	16	56	5	East.
	17	64	5	Various.
	18	78	6	North.
Rio de Janeiro	19	72	4	,,
,,	20	72	—	,,
,,	21	70	2	East.
,,	22	74	3	,,
	23	80	3	,,
	24	79	4	S.E.
	25	82	4	,,
	26	78	4	,,
	27	77	3	,,
	28	78	5	N.E.
	29	75	4	,,
	30	68	4	,,
July	1	69	6	,,
Teneriffe	2	68	6	,,
,,	3	63	5	,,
	4	66	6	,,
	5	63	5	,,
	6	60	5	North.
	7	62	3	N.W.
Plymouth	8	64	5	S.W.
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—

VOYAGE 17.—STEAMER II.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1890.		Deg.		
April	19	—	—	—
Plymouth]	20	54	2	South.
	21	56	4	,,
	22	60	3-4	North.
	23	64	5	E.N.E.
Teneriffe	24	68	4	East.
	25	68	4	,,
	26	70	5	N.E.
	27	70	5	,,
	28	76	4	N.N.E.
	29	79	2	Variable.
	30	84	3	S.E.
May	1	82	4	S.S.E.
	2	81	4	,,
	3	81	4	S.E. by S.
	4	78	4	S.S.E.
	5	74	5	S. by E.
	6	70	6	S.E.
	7	66	6	,,
	8	66	6	,,
	9	65	5	S.S.E.
	10	63	4	S.E.
	11	60	4	South.
[*Cape Town*	12	56	4	W.S.W.
	13	60	5	,,
	14	64	5	N.W.
	15	61	5	N.N.W.
	16	47	4	S.W. by S.
	17	42	5	W.S.W.
	18	38	4	East.
	19	41	6	North.
	20	34	5	S.W.
	21	32	5	W.S.W.
	22	30	7	West.
	23	32	4	South.
	24	34	4	N.E. by E.
	25	33	9	E.N.E.
	26	37	8	N.W.
	27	37	7	W.S.W.
	28	40	4	N.W.
	29	49	5	West.
	30	51	7	N.N.W.
	31	57	5	,,
June	1	—	—	—
Hobart	2	55	4	North.
	3	57	4	N.N.W.
	4	57	5	,,
Wellington	5	55	5	South.
June	26	—	—	—
Lyttelton]	27	44	4	South.
	27	42	5	West.
	28	44	7	,,
	29	40	6-7	,,
	30	44	3	S.W.
July	1	37	6	East.
	2	36	6	,,
	3	41	3	N.E.
	4	41	4	N.W.
	5	41	7	W. by N.
	6	36	6	S.W.
	7	39	4	N.W.
	8	39	4	West.
	9	36	5	,,
	10	40	6	N.W.
	11	42	8	N.W. by W.
	12	41	6	,,
	13	46	3	N.W.
	14	49	4	West.
	15	56	4	N.W.
	16	63	5	N.E.
	17	65	4	N.E. by N.
Rio de Janeiro	18	70	5	N.N.E.
,,	19	—	—	—
,,	20	68	3	N.E.
	21	70	5	East.
	22	72	4	,,
	23	68	4	,,
	24	76	4	,,
	25	76	4	,,
	26	75	3	,,
	27	82	3	S.E.
	28	76	3	N.W.
	29	75	4	North.
	30	75	4	N.W.
	31	72	4	N.N.E.
August	1	68	4	,,
Teneriffe	2	67	4	North.
,,	3	69	4	,,
	4	65	4	,,
	5	65	4	,,
	6	64	4	,,
	7	63	4	East.
	8	60	4	,,
Plymouth	9	—	—	—

VOYAGE 18.—STEAMER III.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1890.		Deg.		
May	17	52	5	S.W.
Plymouth]	18	51	6	S.W.
	19	53	5	West
	20	57	3	W.S.W.
	21	60	3	W.N.W.
Teneriffe	22	—	—	—
	23	67	3	W.N.W.
	24	78	3	North
	25	72	5	N.N.E.
	26	74	3	Variable
	27	80	3	,,
	28	77	5	S.S.E.
	29	77	4	,,
	30	77	4	,,
	31	76	5	,,
June	1	71	5	,,
	2	67	5	South
	3	64	5	,,
	4	65	6	S.S.E.
	5	63	6	,,
	6	62	3	Variable
Cape Town	7	—	—	—
	8	59	3	S.S.E.
	9	51	3	Variable
	10	54	4	N.W.
	11	48	6	West
	12	42	8	W.S.W.
	13	40	7	S.W.
	14	43	6	W.S.W.
	15	39	7	,,
	16	43	9	W. by N.
	17	42	6	West
	18	42	2	Variable
	19	43	6	N.W.
	20	44	5	,,
	21	44	5	N.N.W.
	22	46	4	Variable
	23	49	5	N.W.
	24	48	3	Variable
Hobart	25	47	6	E.S.E.
,,	26	45	6	S.E.
	27	49	5	,,
	28	46	5	,,
	29	46	6	South
Pt. Chalmers	30	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
July	24	—	—	—
Lyttelton]	25	46	5	N. by E.
	25	44	6	North
	26	44	5	N.W.
	27	41	6	North
	28	36	5	W. by N.
	29	32	6	W.S.W.
	30	32	6	,,
	31	32	6	,,
August	1	33	5	S.W.
	2	33	6	Various
	3	34	7	,,
	4	30	7	,,
	5	33	8	West
	6	35	7	S.W.
	7	39	6	W. by N.
	8	41	7	N.W. by W.
	9	46	7	,,
	10	52	4	North
	11	57	3	,,
	12	64	4	,,
Rio de Janeiro	13	70	3	N.E.
,,	14	—	—	—
	15	70	5	N.E.
	16	71	5	N.N.E.
	17	72	3	East
	18	73	5	E.S.E.
	19	74	5	S.E.
	20	73	5	S.E. by E.
	21	73	5	E.S.E.
	22	76	3	Various
	23	75	2	,,
	24	75	4	N.E.
	25	72	6	N.N.E.
	26	68	6	N.E.
Teneriffe	27	—	—	—
	28	67	5	N.E.
	29	65	6	N.N.E.
	30	63	5	N.E.
	31	60	4	N.N.E.
September	1	59	2	E.N.E.
Plymouth	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—

NOTE.—Force of wind, 0 to 12. Noon temperature dry thermometer.

ABSTRACT OF LOG OF STEAMERS BETWEEN ENGLAND AND NEW ZEALAND.—YEAR 1890.

VOYAGE 19.—STEAMER IV.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1890.		Deg.		
June	14	62	4	N.W.
Plymouth]	15	60	2	Variable.
	16	71	4	,,
	17	69	2	N.W.
	18	78	2	North.
Tener'fe	19	75	4	,,
	20	70	4	N.E.
	21	72	3	,,
	22	74	0	Variable.
	23	85	1	South.
	24	82	3	,,
	25	80	4	,,
	26	80	3	,,
	27	83	3	S.S.E.
	28	80	3	S.E.
	29	74	4	,,
	30	68	5	,,
July	1	66	5	,,
	2	65	4	,,
	3	65	4	South.
	4	68	3	,,
Cape Town	5	59	0	Calm.
	6	59	5	West.
	7	55	7	W.S.W.
	8	50	9-11	W.
	9	44	9-11	W.S.W.
	10	50	9	S.W., N.W.
	11	44	8	West.
	12	42	7	,,
	13	44	6	S.W.
	14	46	6	W.S.W.
	15	47	5	W.S.W., W.N.W.
	16	53	5	N.N.W., N.W.
	17	43	7	N.W.
	18	39	10	S.W.
	19	44	7	S.S.E.
	20	45	6	S. to S.E.
	21	44	5	S.E.
	22	50	3	S.S.E., N.W.
	23	50	6-3	N.N.W.
Hobart	24	51	5	N.W., S.W.
	25	55	3	South.
	26	52	2-5	Variable.
	27	52	3-5	S.E., E.N.E.
	28	58	5	S.E.
Wellington	29	55	6	,,
August	21	—	—	—
Wellington]	22	62	2	E., S.S.E.
	22	49	4	S.S.W.
	23	50	5	West.
	24	46	6	W.N.W.
	25	57	2	West.
	26	45	1	E.N.E.
	27	43	4	East.
	28	44	5	E., N.W.
	29	44	4	N.W., S.W.
	30	43	1-5	North.
	31	36	5-1	Various.
September	1	43	4-2	,,
	2	42	4-6	S.-S.S.W.
	3	41	7	S.-E.
	4	41	7	E.N.E.
	5	42	2	Various.
	6	42	3-6	W., N.
	7	42	7	N.N.W.
	8	60	6-3	N.W., N.
	9	63	9	N.E.
	10	68	10	N.N.E.
	11	72	2	Various.
Rio de Janeiro	12	85	3	North.
,,	13	73	0	Calm.
	14	76	7	North.
	15	78	6-3	N.E.
	16	77	5	East.
	17	80	4-6	E.S.E.
	18	80	5	S.E.
	19	83	5	,,
	20	76	Var.	Various.
	21	74	3-6	,,
	22	82	6-4	,,
	23	78	4	E., N.N.E.
Tenerife	24	76	6	N.E.
,,	25	77	4	N.N.E.
	26	75	6	,,
	27	72	6-2	N.E.
	28	74	4	,,
	29	58	5-2	,,
Plymouth	30	57	2	N.W.

VOYAGE 20.—STEAMER V.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1890.		Deg.		
July	12	58	1-3	Variable.
Plymouth]	13	62	3	W.N.W.
	14	65	3	North.
	15	68	1	W.N.W.
	16	70	3	N.N.E.
Teneriffe	17	70	6	North.
	18	72	5-6	N.E.
	19	76	4	E.N.E.
	20	78	3	S.W.
	21	79	5	W.S.W.
	22	75	4	Variable.
	23	72	2	S. by W.
	24	71	3	S.E.
	25	73	5	S. by E.
	26	70	4	S.S.E.
	27	67	5	S. by E.
	28	64	3	South.
	29	64	4	S.S.W.
	30	61	3	,,
	31	59	4	Variable.
August	1	58	3	W.S.W.
Cape Town	2	58	1	N.E.
,,	3	60	5	N.N.W.
	4	62	6	,,
	5	52	7	W.N.W.
	6	42	7	N.W.
	7	44	7	,,
	8	42	5	N.N.W.
	9	44	8	N.W.
	10	36	6	S.W.
	11	46	8	N.W.
	12	40	7	West.
	13	37	7	,,
	14	43	8	North.
	15	44	6	West.
	16	43	5	S.W.
	17	42	5	,,
	18	43	7	W.S.W.
	19	48	5	S.S.W.
Hobart	20	55	4	N.W.
,,	21	54	3	West.
	22	54	3	,,
	23	52	3	,,
	24	52	8	South.
Wellington	25	52	2	Variable.
	—	—	—	—
September	19	65	2	S.W.
Lyttelton]	20	48	4	N.N.E.
	20	48	3	N.N.W.
	21	47	2	W.N.W.
	22	44	4	W.S.W.
	23	28	3	,,
	24	24	8	S.W.
	25	37	8 7	,,
	26	40	7	W.N.W.
	27	39	6	W.S.W.
	28	38	5	W by N.
	29	40	7	W.N.W.
	30	40	6	,,
October	1	38	7	W. by N.
	2	41	6	N.W. by W.
	3	38	6	W.N.W.
	4	38	3	W. by N.
	5	40	4	W.N.W.
	6	48	5	West.
	7	54	3	S.E.
	8	64	5	E.S.E.
	9	71	4	E.N.E.
Rio de Janeiro	10	74	1-2	Various.
,,	11	70	3	S.E.
	12	72	3	South.
	13	76	2	Various.
	14	78	3	E.S.E.
	15	78	4	,,
	16	77	4	,,
	17	80	4	,,
	18	79	4	,,
	19	82	2	N.E.
	20	79	5	,,
	21	74	3	,,
	22	72	3	East.
Teneriffe	23	71	2	Various.
	24	68	2	N.E.
	25	64	4	E.S.E.
	26	62	3	N.W.
	27	50	6	N.N.E.
Plymouth	28	50	4	,,
	—	—	—	—

VOYAGE 21.—STEAMER I.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1890.		Deg.		
August	9	—	—	—
Plymouth]	10	64	6	S.W.
	11	66	6	,,
	12	70	3	,,
	13	72	3	North.
Teneriffe	14	74	4	N.E.
	15	71	5	,,
	16	77	3	,,
	17	82	2	West.
	18	76	5	S.W.
	19	78	5	South.
	20	74	4	S.E.
	21	78	4	,,
	22	72	5	,,
	23	70	6	,,
	24	66	7	,,
	25	64	7	,,
	26	62	6	,,
	27	58	5	South.
	28	60	6	S.S.W.
	29	58	5	S. by E.
Cape Town	30	59	5	S.E.
,,	31	68	4	South.
September	1	55	5	,,
	2	56	4	North.
	3	55	4	,,
	4	51	4	,,
	5	52	4	,,
	6	48	5	,,
	7	52	6	West.
	8	53	7	,,
	9	46	9	S.W.
	10	43	7	S.S.W.
	11	44	6	West.
	12	50	6	North.
	13	49	4	Variable.
	14	44	3	East.
	15	52	4	Variable.
	16	52	4	West.
	17	52	4	,,
Hobart	18	54	5	,,
,,	19	56	4	,,
	20	56	4	,,
	21	56	5	S.W.
	22	52	5	South.
Wellington	23	52	6	S.E.
October	16	61	4	S.E.
Wellington]	17	52	4	,,
	17	54	9	North.
	18	54	9	,,
	19	47	6	N.W.
	20	52	6	S.W.
	21	48	6	West.
	22	50	6	N.W.
	23	46	4	West.
	24	44	3	East.
	25	48	4	South.
	26	42	3	,,
	27	42	2	,,
	28	43	3	East.
	29	44	2	,,
	30	45	3	North.
	31	46	2	Various.
November	1	46	2	,,
	2	48	1	N.E.
	3	45	1	N.N.E.
	4	64	4	,,
	5	65	5	East.
	6	68	6	N.E.
Rio de Janeiro	7	74	7	,,
,,	8	74	3	Various.
	9	74	3	S.E.
	10	76	6	N.E.
	11	78	5	E.N.E.
	12	79	4	,,
	13	80	5	,,
	14	78	5	,,
	15	78	5	Various.
	16	84	6	N.E.
	17	78	5	,,
	18	79	6	,,
	19	72	6	,,
Teneriffe	20	70	6	,,
	21	66	5	,,
	22	66	5	,,
	23	60	6	,,
	24	59	6	N.W.
Plymouth	25	46	7	,,

NOTE.—Force of wind, 0 to 12. Noon temperature, dry thermometer.

ABSTRACT OF LOG OF STEAMERS BETWEEN ENGLAND AND NEW ZEALAND.—YEARS 1890, 1891.

VOYAGE 22.—STEAMER II.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1890.		Deg.		
September	6	—	—	—
Plymouth	7	66	3	S.E.
	8	63	2	East.
	9	66	4	N.N.E
	10	71	3	N.E.
Teneriffe	11	71	3	E.N.E.
	12	69	2	Variable.
	13	82	2	E.N.E.
	14	76	2	Variable.
	15	78	2	S.W.
	16	78	2	Variable.
	17	75	4	South.
	18	70	4	S.S.W.
	19	71	2	South.
	20	70	2	"
	21	66	3	"
	22	62	4	S.S.E.
	23	59	4	"
	24	58	3	South.
	25	57	4	"
	26	57	4	"
	27	60	2	Variable.
Cape Town	28	54	3-5	N.W.
	29	59	5	"
	30	60	5	N.E.
October	1	60	5	N.W.
	2	50	6	W.N.W.
	3	45	6	North.
	4	43	4	N.W.
	5	45	4	West.
	6	46	6	North.
	7	38	8	West.
	8	39	6	N.E.
	9	34	6	West.
	10	36	2	Variable.
	11	42	3	"
	12	38	2	"
	13	38	3	"
	14	45	Var.	"
	15	49	4	North.
	16	53	3	N.W.
	17	47	6	N.W. to S.
Hobart	18	48	5	South.
"	19	52	3-7	Variable.
	20	49	6	S.W. to N.W.
	21	57	7-4	W.S.W.
	22	57	5	"
	23	57	5-6	"
Wellington	24	60	—	"
				—
November	13	—	—	—
Lyttelton	14	52	4	South.
	14	48	5	Various.
	15	46	4	East.
	16	45	2	S. East.
	17	44	1	East.
	18	46	2	South.
	19	43	5	S.W.
	20	42	5	"
	21	42	5	W.S.W.
	22	39	5	N.W.
	23	48	4	N., S.W.
	24	46	5-6	N.W.
	25	45	6-4	N.W. by N.
	26	42	1-5	N.N.E. to W.
	27	42	6	West.
	28	46	4 3	Various.
	29	51	Var.	"
	30	48	3	N W.
December	1	58	4	"
	2	64	5	N.N.W.
	3	67	5	"
	4	72	5-6	S.E.
	5	78	4	South.
Rio de Janeiro	6	75	—	—
"	7	—	—	—
	8	79	3	N.E.
	9	79	3	North.
	10	80	3	E.N.E.
	11	78	3	"
	12	81	3	N.E.
	13	80	4	East.
	14	80	4	"
	15	78	3	N.E.
	16	76	4	"
	17	73	4	"
	18	72	3	"
	19	69	4	"
Teneriffe	20	68	4	"
"	21	65	4	"
	22	65	—	—
	23	62	4	N.E.
	24	59	4	N.N.E.
	25	57	5-6	N.N.W.
	26	56	5	N.E.
	27	52	5-3	"
	28	49	4	East.
	29	45	3	"
Plymouth	30	—	—	—

VOYAGE 23.—STEAMER III.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1890.		Deg.		
October	4	—	—	—
Plymouth	5	56	2	Variable.
	6	66	0	Calm.
	7	67	3	N.N.E.
	8	67	4	N.E.
Teneriffe	9	—	—	—
	10	73	4	E.N.E.
	11	73	2	"
	12	84	2	"
	13	83	0	Calm.
	14	82	0	"
	15	81	4	S.S.E.
	16	77	5	"
	17	75	5	"
	18	74	5	"
	19	70	4	South.
	20	67	3	"
	21	66	4	S.S.E.
	22	64	5	South.
	23	63	5	"
	24	63	5	"
Cape Town	25	—	—	—
	26	62	6	S.E.
	27	62	5	"
	28	53	4	S.S.E.
	29	45	3	N.E.
	30	45	5	N.N.E.
	31	46	6	North.
November	1	42	7	Various.
	2	40	5	S.W.
	3	40	5	N.W.
	4	44	4	N.N.W.
	5	47	4	"
	6	46	5	"
	7	41	5	Variable.
	8	46	6	"
	9	44	7	West.
	10	46	7	"
	11	54	7	W.S.W.
	12	55	4	"
Hobart	13	54	2	Variable.
	14	59	6	N.E.
	15	56	6	North.
	16	61	5	N.W.
	17	58	3	Variable.
Wellington	18	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
December	10	—	—	—
Lyttelton	11	55	3	N.E.
	11	53	3	N.N.E.
	12	53	3	N W.
	13	48	4	S E.
	14	46	7	South.
	15	44	7	S.S.E.
	16	44	6	"
	17	45	4	"
	18	46	5	S.W.
	19	46	5	W.S.W.
	20	48	5	West.
	21	48	7	Various.
	22	50	4	S.S.W.
	23	48	2	W.N.W.
	24	47	4	N.E.
	25	46	7	"
	26	42	3	N N E.
	27	44	6	East.
	28	52	4	S.E.
	29	61	4	W.N.W.
	30	68	4	North.
	31	72	5	N.N.E.
1891.				
Rio January	1	75	5	N.E.
"	2	85	2	Various.
	3	81	4	N.E.
	4	79	5	"
	5	79	4	East.
	6	78	3	"
	7	78	3	E.S.E.
	8	78	5	"
	9	78	4	"
	10	78	4	N.E.
	11	74	5	"
	12	70	5	"
	13	65	4	"
	14	63	4	East.
Teneriffe	15	—	—	—
	16	58	4	E.N.E.
	17	54	5	N.E.
	18	49	6	N.N.E.
	19	44	4	N.E.
Plymouth	20	45	3	Various.
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—

VOYAGE 24.—STEAMER IV.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1890.		Deg.		
November	1	53	5	N.W.
Plymouth	2	54	7	West.
	3	64	5	"
	4	66	4	N.W.
	5	68	4	N.E.
Teneriffe	6	74	4	Variable.
	7	69	3	"
	8	67	3	E.N.E.
	9	80	3	N.E.
	10	88	1	Variable.
	11	83	3	S S.E.
	12	83	3	South.
	13	80	4	"
	14	78	5	"
	15	75	5	"
	16	72	6	S.S.E.
	17	68	6	"
	18	66	6	"
	19	68	6	South.
	20	67	7	"
	21	66	6	"
	22	62	6	"
Cape Town	23	65	6	"
	24	69	4	"
	25	66	3	"
	26	59	5	S.S.E.
	27	54	5	East.
	28	49	5	E.N.E.
	29	47	5	N.N.E.
	30	52	4	N.E.
December	1	57	4	"
	2	49	4	"
	3	49	3	Variable.
	4	58	3	"
	5	50	3	North.
	6	54	4	"
	7	53	5	"
	8	46	7	N.N.W.
	9	51	7	N.W.
	10	54	7	N.N.W.
	11	51	5	West.
	12	52	4	"
Hobart	13	54	3	"
"	14	58	3	S.W.
	15	56	5	S.S.E.
	16	56	6	West.
	17	57	5	N.W.
Lyttelton	18	58	4	Variable.
				—
1891.				
January	9	—	—	—
Wellington	9	64	4	N.W.
	10	54	7	S.W.
	11	58	5	Variable.
	12	48	6	S S E.
	13	57	4	N.W., S.E.
	14	53	4	W.N.W.
	15	55	4	West.
	16	49	3	North.
	17	49	3	Variable.
	18	55	1	"
	19	50	1	"
	20	53	3	West.
	21	48	8	W.S.W.
	22	51	7	South.
	23	47	3	Variable.
	24	54	5	N.W.
	25	55	3	E.S.E.
	26	61	6	S.E.
	27	72	6	N.E.
	28	78	6	"
	29	83	4	Variable.
	30	85	3	N.E.
Rio de Janeiro	31	86	2	Variable.
February	1	—	—	—
	2	83	5	N.N.E.
	3	85	4	"
	4	84	3	"
	5	83	4	E N.E.
	6	84	5	E.S.E.
	7	83	5	"
	8	84	5	Variable.
	9	82	4	N.E.
	10	75	4	"
	11	72	4	"
	12	66	4	"
Teneriffe	13	—	—	—
	14	68	3	N.E.
	15	63	4	"
	16	65	3	"
	17	53	6	E.N.E
	18	54	6	"
Plymouth	19	45	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—

NOTE.—Force of wind, 0 to 12. Noon temperature, dry thermometer.

ABSTRACT OF LOG OF STEAMERS BETWEEN ENGLAND AND NEW ZEALAND—YEARS 1890, 1891.

VOYAGE 25.—STEAMER V.

Place and date.	Noon temp.	Wind. Force	Wind. Direction.
1890.	Deg.		
November 30	31	2	Variable.
Plymouth December 1	44	2	Variable.
2	52	6	S.E.
3	58	7	North.
4	65	3	N.N.W
Teneriffe 5	69	3	W.N.W
6	72	0	Calm.
7	75	2	North.
8	80	4	E.N.E.
9	82	3	East.
10	79	0	Calm.
11	80	4	S.S.W.
12	77	3	South.
13	73	3	"
14	76	3	S.S.E.
15	70	2	"
16	74	4	"
17	69	4	"
18	70	4	South.
19	66	4	S.S.W.
20	68	4	W.S.W.
Cape Town 21	64	3-2	Variable.
22	67	3	S.E.
23	58	3	E. by N.
24	51	6-7	Variable.
25	44	5	W. by S.
26	45	5	S.W.
27	46	4	West.
28	42	3	S.W.
29	46	5	W.S.W.
30	44	5	North.
31	46	5	N.E.
1891.			
January 1	49	6	W.N.W.
2	48	8	West.
3	46	6-5	W.S.W.
4	50	7 6	S.S.W.
5	52	5-4	S.W. by W.
6	58	6	N.W.
7	56	6	"
Hobart 8	75	6	Variable.
" 9	61	3	"
10	55	6	S.W.
Otago 11	55	4	S.W. by S.
12	54	4	Variable.
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
February 5	70	4	N.W.
Wellington 6	58	2	South.
6	54	4	S.S.W.
7	54	5	S.W.
8	55	3	W.N.W.
9	62	3	West.
10	50	4	South.
11	51	6	W.N.W.
12	52	5	"
13	59	6	W.S.W.
14	50	6	S.W.
15	50	5	S. by W.
16	46	5	West.
17	46	3	S. by E.
18	52	4	S.W.
19	46	5	N. by W.
20	47	4	S.E.
21	57	4	West.
22	64	6	S.W.
23	70	5	W.N.W.
24	79	4	"
25	80	3	"
26	80	5	W. by N.
Rio de Janeiro 27	88	2	S.S.E.
" 28	84	3	E.N.E.
March 1	82	3	E. by N.
2	80	5	E. by S.
3	82	4	E.S.E.
4	82	3	S.E. by E.
5	83	3	S.E.
6	82	2	Various.
7	82	3	N.N.E.
8	78	3	N.E.
9	72	4	N.E. by E.
10	70	4	"
11	68	4	N.E.
Teneriffe 12	66	2	N.E by E.
" 13	63	4	Various.
14	56	5	N.E. by E.
15	56	3	N.W.
16	50	7	West.
17	50	6	S.S.E.
Plymouth 18	44	4	East.
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

VOYAGE 26.—STEAMER I.

Place and date.	Noon temp.	Wind. Force	Wind. Direction.
1890.	Deg.		
December 30	—	—	—
Plymouth 31	52	8	N.E.
1891.			
January 1	58	5	East.
2	60	4	N.W.
3	64	3	Variable.
Teneriffe 4	66	3	N.E.
5	66	4	"
6	67	3	"
7	74	4	"
8	77	3	"
9	82	2	Variable.
10	80	4	"
11	79	5	South.
12	77	5	"
13	76	5	S.E.
14	71	6	"
15	74	6	"
16	70	7	"
17	70	6	"
18	69	5	South.
19	71	5	"
Cape Town 20	69	6	"
21	70	5	"
22	59	5	Variable.
23	54	4	South.
24	47	4	S.S.W.
25	49	3	West.
26	46	5	"
27	42	7	"
28	42	6	"
29	42	6	"
30	45	4	Variable.
31	44	6	"
February 1	44	8	West.
2	48	6	"
3	50	5	N.W.
4	52	7	Variable.
5	50	5	"
6	55	7	North.
Hobart 7	59	6	"
" 8	70	4	N.W.
9	59	7	North.
10	63	8	"
11	66	4	"
Wellington 12	62	7	S.E.
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
1891.			
March 5	—	—	—
Lyttelton 6	54	6	South.
6	57	5	S.W.
7	59	2	"
8	53	5	Various.
9	53	5	N.W.
10	50	4	South.
11	50	3	East.
12	49	4	North.
13	46	5	Various.
14	48	4	West.
15	42	6	North.
16	46	6	Various.
17	54	6	N.W.
18	56	6	"
19	49	8	"
20	49	8	"
21	52	7	"
22	59	7	"
23	68	5	"
24	68	3	N.E.
25	70	4	"
26	78	3	"
Rio de Janeiro 27	82	3	"
" 28	86	2	"
29	81	6	"
30	82	7	"
31	82	4	"
April 1	82	Var.	Various.
2	82	4	East.
3	82	4	"
4	78	Var.	Various.
5	78	4	N.E.
6	78	4	"
7	72	4	"
8	70	0	Calm.
9	64	4	N.E.
Teneriffe 10	63	5	"
11	59	6	"
12	61	4	"
13	58	3	N.W.
14	54	3	Various.
Plymouth 15	50	4	N.W.
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

VOYAGE 27.—STEAMER II.

Place and date.	Noon temp.	Wind. Force	Wind. Direction.
1891.	Deg.		
January 26	49	5	S.W.
Plymouth 27	54	6	"
28	57	4	W.S.W.
29	59	4	S.W.
30	63	3	S.
Teneriffe 31	63	3	N.E.
February 1	66	5	E.N.E.
2	65	6	East.
3	67	3	"
4	75	2	Variable.
5	79	2	W.N.W.
6	84	1	Variable.
7	83	2	S.S.E.
8	83	2	"
9	83	4	S. by E.
10	80	4	S.S.E.
11	79	4	S. by E.
12	75	4	South.
13	74	4	S. by E.
14	73	4	S.E.
15	70	4	S. by E.
16	69	4	S.S.W.
17	69	1	Variable.
Cape Town 18	66	4	N.W.
19	71	4	W.S.W.
20	59	7	S. by W.
21	59	5	N.N.E.
22	60	3	Variable.
23	51	4	N.N.E.
24	49	6	N.W.
25	45	8	W.N.W.
26	45	6	West.
27	40	5	North.
28	44	4	N.W.
March 1	41	3	N.E.
2	44	5	North.
3	43	4	S.W.
4	43	2	N.N.E.
5	44	5	S.E.
6	49	4	N.E.
7	54	4	N.N.W.
8	54	8	N.W.
9	59	5	W.N.W.
Hobart 10	67	0	Calm.
" 11	62	2	S.E.
12	60	4	N.N.W.
13	62	4	Variable.
14	65	3	S.S.W.
15	67	5	South.
Wellington 16	—	—	—
April 4	—	—	—
Lyttelton 5	51	7	S.E.
6	54	4	East.
6	50	4	"
7	58	4	W.S.W.
8	59	6	N.W.
9	54	7	N.W. & W.
10	52	4	N.W.
11	51	5	"
12	46	2	W.S.W.
13	47	6	S.W.
14	47	5	W.S.W.
15	46	6	"
16	44	6	N.W.
17	49	5	"
18	45	5	N.N.W.
19	46	5	"
20	48	2	North.
21	47	6	N.W.
22	41	4	Variable.
23	60	5	W.S.W.
24	61	4	S.W.
25	70	4	W.N.W.
26	72	2	Variable.
27	75	2	N.N.E.
Rio de Janeiro 28	72	3	N.W.
" 29	71	2	Variable.
30	81	3	S.W.
May 1	81	4	East.
2	84	3	N.E.
3	86	4	E.N.E.
4	89	4	E.S.E.
5	87	4	"
6	75	3	Variable.
7	80	3	"
8	81	3	N.E.
9	78	3	"
10	77	3	North.
11	73	3	N.E.
12	72	3	"
13	72	1	"
14	69	3	East.
Teneriffe 15	68	3	"
" 16	67	3	N.E.
17	65	4	"
18	63	3	N. by E.
19	64	4	S.S.W.
20	60	4	W.S.W.
21	54	4	North.
22	53	2	N.W.
Plymouth 23	56	2	S.W.

NOTE.—Force of wind, 0 to 12. Noon temperature, dry thermometer.

ABSTRACT OF LOG OF STEAMERS BETWEEN ENGLAND AND NEW ZEALAND.—YEAR 1891.

VOYAGE 28.—STEAMER III.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1891.		Dec.		
February	28	49	2	East.
Plymouth				
March	1	56	2	"
	2	58	2	"
	3	57	6	E.S.E.
Teneriffe	4	60	4	"
	5	63	4	Variable.
	6	66	4	N.N.E.
	7	65	2	N.E.
	8	70	4	N.N.E.
	9	75	2	N.W.
	10	78	3	S.S.E.
	11	78	4	South.
	12	77	4	S.S.E.
	13	76	4	S.S.E.
	14	75	5	S.E.
	15	72	4	S.S.E.
	16	72	2	South.
	17	69	5	"
	18	67	0	"
	19	67	5	"
Cape Town	20	65	0	Calm.
	21	66	7	West.
	22	61	7	W.S.W.
	23	56	5	North.
	24	51	6	Variable.
	25	45	5	"
	26	39	4	N.N.E.
	27	42	3	Variable.
	28	39	5	S.W.
	29	41	6	S.S.W.
	30	44	5	Variable.
	31	46	6	N.N.W.
April	1	46	6	North.
	2	47	5	N.E.
	3	48	4	East.
	4	51	6	N.N.E.
	5	52	6	Variable.
	6	55	6	N.W.
	7	53	8	S.W.
Hobart	8	55	7	"
	9	58	4	W.S.W.
	10	61	4	"
	11	62	5	N.N.W.
	12	64	5	N.W.
Wellington	13	—	—	—
May	2	—	—	—
Wellington]	3	54	7	S.S.E.
	3	49	6	South.
	4	46	8	"
	5	54	6	S.W.
	6	50	6	"
	7	50	5	"
	8	52	5	W.S.W.
	9	48	7	"
	10	48	6	West.
	11	43	7	W.S.W.
	12	41	6	"
	13	41	5	South.
	14	41	5	Various.
	15	43	5	W.N.W.
	16	44	6	"
	17	40	7	"
	18	43	6	Variable.
	19	43	4	"
	20	48	6	W.S.W.
	21	56	4	Variable.
	22	65	5	N.N.E.
	23	70	5	North.
	24	74	4	"
Rio de Janeiro	25	75	2	East.
"	26	77	2	Variable.
	27	76	4	N.N.E.
	28	78	4	N.
	29	79	4	Variable.
	30	81	4	S.E.
	31	81	4	"
June	1	82	4	"
	2	81	4	"
	3	81	4	Variable.
	4	78	4	N.E.
	5	75	4	"
	6	71	5	"
	7	70	5	N.N.E.
Teneriffe	8	70	4	N.E.
	9	71	3	"
	10	68	4	N.N.E.
	11	64	5	"
	12	59	5	"
	13	58	5	N.E.
Plymouth	14	58	2	N.N.W.

VOYAGE 29.—STEAMER IV.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1891.		Dec.		
March	22	48	4	N.E.
Plymouth]	23	51	6	"
	24	57	6	North.
	25	60	4	East.
Teneriffe	26	—	—	—
	27	68	5	East.
	28	74	4	Variable.
	29	78	3	"
	30	83	2	West.
	31	72	3	S.E.
April	1	85	3	South.
	2	85	4	"
	3	84	4	"
	4	82	5	"
	5	81	5	"
	6	76	6	"
	7	75	6	S.S.E.
	8	74	6	"
	9	73	5	South.
	10	70	4	"
Cape Town	11	—	—	—
	12	76	3	West.
	13	77	3	Variable.
	14	66	2	"
	15	49	5	S.W.
	16	45	6	"
	17	42	4	S.E.
	18	46	3	Variable.
	19	49	2	South.
	20	47	2	Variable.
	21	48	4	East.
	22	49	6	S.W.
	23	44	8	West.
	24	48	7	"
	25	50	4	Variable.
	26	49	3	"
	27	53	3	North.
	28	53	3	N.W.
	29	53	4	S.W.
Hobart	30	—	—	—
May	1	—	—	—
Hobart]	2	56	5	S.W.
	3	55	3	Variable.
	4	57	5	S.W.
Wellington	5	—	—	—
May	30	—	—	—
Lyttelton]	31	54	4	North.
June	1	45	5-7	Variable.
	1	46	5	South.
	2	46	6	W.S.W.
	3	47	5	"
	4	49	5	N.W.
	5	47	5	"
	6	47	4	"
	7	47	4	"
	8	42	5	N.E.
	9	48	5	West.
	10	42	7	S.W.
	11	41	5	S.S.W.
	12	41	4	S.W.
	13	41	4	"
	14	40	5-8	N.W.
	15	44	7	"
	16	46	6	"
	17	48	5	West.
	18	47	4	"
	19	57	3	Variable.
	20	69	5	N.N.E.
	21	63	5	Variable.
Rio de Janeiro	22	—	—	—
"	23	—	—	—
	24	78	4	N.E.
	25	79	4	E.N.E.
	26	81	4	East.
	27	82	6	"
	28	80	5	E. by N.
	29	84	4	E.N.E.
	30	83	3	Variable.
July	1	82	4	N.E.
	2	79	4	"
	3	75	5	"
	4	78	4	"
Teneriffe	5	—	—	—
	6	76	4	N.E.
	7	77	4	"
	8	70	6	"
	9	65	5	"
Plymouth	10	60	4	"
	—	—	—	—
	—	—	—	—

VOYAGE 30.—STEAMER V.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1891.		Deg.		
April	18	51	2	N.W.
Plymouth]	19	53	6	S.E. by S.
	20	61	4	S.W. by W.
	21	64	2	Variable.
	22	66	2	W.N.W.
Teneriffe	23	68	5	N.N.E.
	24	66	3	E.N.E.
	25	72	4	N.E.
	26	74	4	E.N.E.
	27	86	3	Variable.
	28	86	2	West.
	29	81	3	S.S.W.
	30	84	4	S. by E.
May	1	80	5	South.
	2	79	4	S. by E.
	3	79	3	S.S.E.
	4	72	4	South.
	5	73	5	S.S.E.
	6	64	6	"
	7	65	6	S. by E.
Cape Town	8	68	2	S.S.E.
"	9	67	2	Variable.
	10	74	3	S.E.
	11	67	2	Variable.
	12	56	3	N.N.E.
	13	54	5	N.E.
	14	50	6	N.N.E.
	15	47	5	W.S.W.
	16	54	5	North.
	17	47	7	N.N.W.
	18	46	7	W. by S.
	19	48	8	W.N.W.
	20	44	7	W.S.W.
	21	49	7	W. by S.
	22	48	7	W.N.W.
	23	50	8	N.W.
	24	54	7	West.
	25	54	4	N.W.
	26	56	6	N. by W.
Hobart	27	69	4	N.N.W.
"	28	58	5	N.W.
	29	54	4	E.S.E.
	30	58	2	E.N.E.
	31	58	3	W.N.W.
June	1	52	7	East.
Wellington]	—	—	—	—
June	27	46	2	S.W.
Lyttelton]	27	44	4	South.
	28	44	6	"
	29	46	6	West
	30	46	6	S.W.
July	1	48	6	W.N.W
	2	47	4	S.W.
	3	39	5	S.S.W.
	4	43	5	S.W.
	5	38	6	"
	6	42	7	N.W.
	7	35	8	S.S.E.
	8	39	3	West.
	9	39	7	N.W.
	10	40	6	W.N.W.
	11	42	5	West.
	12	41	5	N.W.
	13	42	3	W.N.W.
	14	41	4	West.
	15	56	3	N.W.
	16	60	4	N.N.E.
	17	70	4	"
	18	76	3	"
Rio de Janeiro	19	78	2	Variable.
	20	72	4	N.E.
	21	82	3	S.E.
	22	77	5	"
	23	83	4	S.E. by E
	24	81	5	"
	25	82	5	E.S.E.
	26	84	3	S.E.
	27	78	2	Variable.
	28	82	3	North.
	29	81	3	N.E.
	30	76	5	N.E. by N.
Teneriffe	31	78	6	N.N.E
August	1	76	4	"
Teneriffe]	2	74	6	N.E. by N.
	3	70	4	N.N.E.
	4	67	3	N. by W.
	5	65	5	N.W. by W.
Plymouth	6	68	3	N.N.W.
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—

NOTE.—Force of wind, 0 to 12. Noon temperature, dry thermometer.

ABSTRACT OF LOG OF STEAMERS BETWEEN ENGLAND AND NEW ZEALAND.—YEAR 1891.

VOYAGE 31.—STEAMER I.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1891.		Deg		
May	17	52	6	N.W.
Plymouth	18	54	8	S.W.
	19	60	7	"
	20	63	8	South.
Tenerife	21	72	5	West.
	22	67	3	Variable.
	23	78	4	N.E.
	24	72	4	"
	25	75	2	N.W.
	26	80	6	South.
	27	76	6	S.E.
	28	78	6	"
	29	77	6	"
	30	72	5	"
	31	72	4	Variable.
June	1	70	3	"
	2	67	4	S.S.E.
	3	65	3	"
	4	63	2	S.W.
	5	60	2	Variable.
Cape Town	6	53	2	"
	7	59	9	S.E.
	8	50	8	"
	9	49	6	"
	10	46	4	South.
	11	44	4	"
	12	44	0	Calm.
	13	46	4	North.
	14	47	7	N.W.
	15	42	5	"
	16	42	7	West.
	17	43	8	"
	18	45	8	North.
	19	45	6	"
	20	49	7	"
	21	46	10	"
	22	49	9	"
	23	48	7	"
	24	48	5	"
	25	52	3	"
Hobart	26	50	3	S.E.
	27	50	6	E.N.E.
	28	50	7	"
	29	50	7	"
	30	50	7	"
July	1	48	5	"
Wellington	—	—	—	—
July	25	—	—	—
Lyttelton	26	40	6	South.
	26	46	6	S.W.
	27	48	4	"
	28	48	3	West.
	29	45	4	"
	30	48	4	"
	31	42	5	Variable.
August	1	41	6	"
	2	39	6	South.
	3	37	7	S.E.
	4	39	7	South.
	5	39	5	"
	6	39	3	Variable.
	7	37	4	"
	8	40	2	North.
	9	39	6	"
	10	42	6	N.W.
	11	41	2	Variable.
	12	44	3	"
	13	59	3	North.
	14	64	5	"
	15	66	6	"
	16	72	5	"
Rio de Janeiro	17	68	7	"
"	18	70	5	"
	19	67	5	Variable.
	20	76	4	East.
	21	76	4	"
	22	77	4	"
	23	79	5	"
	24	80	5	"
	25	78	4	"
	26	84	Var.	Variable.
	27	85	"	"
	28	78	6	N.E.
	29	78	6	"
Tenerife	30	77	4	"
	31	75	5	"
September	1	74	4	"
	2	74	2	North.
	3	67	4	N.W.
Plymouth	4	66	3	"
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—

VOYAGE 32.—STEAMER II.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1891.		Deg.		
June	13	—	—	—
Plymouth	14	62	2 3	S.E.
	15	68	3	N.N.W.
	16	74	3	N.N.E.
	17	74	2	N.E.
Teneriffe	18	74	2	"
	19	77	3	East.
	20	78	4	N.N.E.
	21	80	1	Variable.
	22	75	0 2	"
	23	78	4-5	S.W.
	24	78	4	South.
	25	75	3	"
	26	75	2	S.S.E.
	27	77	3	"
	28	72	3	"
	29	68	4	"
	30	67	3	"
July	1	67	3	South.
	2	62	4	"
	3	61	3	"
	4	58	3	S.S.E.
Cape Town	5	64	—	—
	6	68	3	S.E.
	7	64	3 4	N.N.E.
	8	56	4	N.
	9	45	2	Variable.
	10	44	5	N.
	11	44	4	"
	12	40	4	S.W.
	13	41	4	W.N.W.
	14	41	4	N.W.
	15	37	7	W.S.W.
	16	40	7-6	W.S.W.
	17	33	3 6	"
	18	35	4 2	West.
	19	42	5	N.N.W.
	20	41	3	Variable.
	21	49	4	N.W.
	22	45	2	Variable.
	23	52	2-3	East.
Hobart	24	46	2	Variable.
	25	52	5	S.S.E.
	26	52	4	East.
	27	53	2	E.N.E.
	28	53	3	"
Wellington	29	—	—	—
August	22	—	—	—
Lyttelton	23	44	1	Variable.
	24	43	2	"
	24	47	2	"
	25	46	4	S.W.
	26	42	5	"
	27	44	4	E.N.E.
	28	42	4	East.
	29	40	2	Variable.
	30	38	7	South.
	31	43	6	S.S.W.
September	1	38	2	"
	2	44	3	W.N.W.
	3	44	4	"
	4	42	5	N.W.
	5	40	5	"
	6	42	3	North.
	7	43	6	N.W.
	8	42	6	W.N.W.
	9	47	3	"
	10	49	3	N.N.W.
	11	57	4	Variable.
	12	60	0	Calm.
	13	67	4	N.E. by N.
	14	74	4	N.N.E.
Rio de Janeiro	15	70	3	Variable.
"	16	77	0	Calm.
	17	74	2	S.E.
	18	77	3	N.E.
	19	79	3	E.N.E.
	20	78	3	East.
	21	80	4	E.S.E.
	22	82	4	S.E.
	23	80	3	"
	24	88	2	"
	25	81	3	N.E. by E.
	26	83	Var.	E.S.E.
	27	83	3	N.N.E.
	28	81	4	N.E.
	29	75	4	"
Teneriffe	30	75	3	"
October	1	74	3	"
	2	72	3	"
	3	68	3	"
	4	66	4	North.
	5	67	3	N.N.W.
	6	60	3	Variable.
Plymouth	7	58	5	S.W.

VOYAGE 33.—STEAMER III.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1891.		Deg.		
July	11	59	2	West.
Plymouth	12	61	2	Various.
	13	69	2	N.E.
	14	69	4	Various.
	15	73	2	S.W.
Teneriffe	16	76	3	W.N.W.
	17	78	4	E.N.E.
	18	79	5	Various.
	19	81	4	West.
	20	77	4	Various.
	21	74	4	South.
	22	73	3	"
	23	75	5	"
	24	74	6	"
	25	70	5	S.S.E.
	26	68	5	"
	27	65	5	"
	28	64	3	South.
	29	62	5	"
	30	57	6	S.S.E.
Cape Town	31	65	5	"
August	1	64	3	S.E.
	2	66	4	East.
	3	58	5	N.N.E.
	4	50	5	"
	5	46	5	N.W.
	6	40	5	Variable.
	7	36	8	S.W.
	8	36	7	W.N.W.
	9	40	6	"
	10	40	4	N.W.
	11	41	9	Variable.
	12	36	10	S.W.
	13	35	9	"
	14	41	8	N.N.W.
	15	44	5	W.N.W.
	16	48	6	North
	17	47	7	Variable.
Hobart	18	49	7	South.
"	19	49	6	S.W.
	20	51	7	S.S.E.
	21	53	6	"
	22	55	6	"
Wellington	23	51	4	Variable.
	—	—	—	—
	—	—	—	—
	—	—	—	—
September	19	—	—	—
Lyttelton	20	47	2	N.E.
	20	45	3	South.
	21	46	2	W.S.W.
	22	45	0	Calm.
	23	44	0	"
	24	44	3	Variable.
	25	45	4	North.
	26	41	5	"
	27	40	3	E.N.E.
	28	38	2	East.
	29	38	3	E.N.E.
	30	36	0	Calm.
October	1	37	4	S.E.
	2	33	4	"
	3	31	5	"
	4	31	6	E.S.E.
	5	35	5	S.S.E.
	6	44	4	South.
	7	50	4	S.E.
	8	59	5	East.
	9	66	7	N.E.
	10	73	5	N.N.E.
Rio de Janeiro	11	79	2	Variable.
"	12	77	2	"
	13	74	4	South.
	14	73	2	S.W.
	15	77	0	Calm.
	16	80	4	S.E.
	17	80	5	"
	18	81	4	"
	19	79	4	Variable.
	20	81	4	N.E.
	21	80	5	"
	22	77	5	"
	23	72	4	North.
Teneriffe	24	73	5	Variable.
	25	69	5	N.N.E.
	26	65	7	N.W.
	27	62	7	North.
	28	61	5	N.N.E.
	29	57	8	E.N.E.
Plymouth	30	51	6	"
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—

NOTE.—Force of wind, 0 to 12. Noon temperature, dry thermometer.

ABSTRACT OF LOG OF STEAMERS BETWEEN ENGLAND AND NEW ZEALAND.—YEARS 1891, 1892.

VOYAGE 34.—STEAMER IV.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1891.		Deg.		
August	10	67	6	West.
Plymouth	11	69	3-5	N.E.
	12	73	5	"
	13	79	2	Variable.
Teneriffe	14	—	—	—
	15	83	4	N.E.
	16	83	2-4	Variable.
	17	88	5	West.
	18	79	5	[S.S.W.
	19	78	6	South.
	20	77	5	"
	21	75	3	"
	22	77	4	"
	23	73	4	S.S.E.
	24	67	6	"
	25	66	6	"
	26	67	6	"
	27	70	5	South.
	28	70	3	W.S.W.
	29	64	3	South.
Cape Town	30	—	—	—
	31	62	3	S.S.E.
September	1	67	5	S.W.
	2	66	6	E.S.E.
	3	55	7	E.N.E.
	4	48	7	N.E.
	5	42	6	North.
	6	40	8	South.
	7	47	7	E.S.E.
	8	47	5	N.E.
	9	46	5	"
	10	43	7	S.E.
	11	42	6	E.S.E.
	12	46	7	North.
	13	45	7	N. to W. / S. to W.
	14	44	8	West.
	15	42	9	N. to W. / S. to W.
	16	44	6	S.S.E.
	17	43	4	Variable.
Hobart	18	57	3	North.
"	19	—	—	—
	20	52	6	South.
	21	52	5	"
	22	60	4	S.E.
Wellington	23	63	—	Variable.
	17	—	—	—
October	18	54	4	N.E.
Wellington	19	51	9	N.N.E.
	19	49	6	N.E.
	20	48	4	North.
	21	50	2	"
	22	44	1	N.E.
	23	48	4	North.
	24	47	4	"
	25	50	3	West.
	26	45	4	N.E.
	27	43	4	N.N.E.
	28	43	4	N.E.
	29	42	3	S.E.
	30	42	4	East.
	31	44	3	S.W.
November	1	43	3	Variable.
	2	47	4	S.W.
	3	49	4	S.E.
	4	60	2	Variable.
	5	66	5	N.E.
	6	68	6	North.
	7	76	2	N.E.
Rio de Janeiro	8	—	—	—
"	9	—	—	—
	10	79	4	North.
	11	75	2	Variable.
	12	84	2	N.E.
	13	82	4	E.N.E.
	14	83	4	S.E.
	15	84	4	"
	16	84	4	"
	17	86	6	N.E.
	18	83	4	"
	19	72	4-2	S.W.
	20	76	4	"
Teneriffe	21	69	6-7	"
"	22	—	—	—
	23	78	6	N.W.
	24	61	9	North.
	25	58	6	"
	26	57	4	Variable.
	27	57	1-2	S.W.
Plymouth	28	—	—	—

VOYAGE 35.—STEAMER V.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1891.		Deg.		
September	5	61	3	N.W.
Plymouth	6	64	3	W.S.W.
	7	68	4	S.W.
	8	77	3	S.S.W.
	9	79	3	S.W.
Teneriffe	10	78	2	W.S.W.
	11	80	3	N.E.
	12	87	2	N.N.E.
	13	77	3	N.W.
	14	82	3	Variable.
	15	80	3	S. by W.
	16	77	4	"
	17	74	3	S.S.W.
	18	74	3	S. by W.
	19	71	3	S.S.E.
	20	65	6	S. by E.
	21	64	5	"
	22	63	5	South.
	23	61	5	S.S.E.
	24	60	2	W.S.W.
Cape Town	25	66	5	West.
	26	59	7	N.W.
	27	58	7	W.S.W.
	28	42	6	West.
	29	41	4	N.W.
	30	42	5	W.S.W.
October	1	42	4	West.
	2	42	7	North.
	3	43	6	W.N.W.
	4	44	5	N.W.
	5	40	4	"
	6	47	4	W.S.W.
	7	43	5	S.W. by S.
	8	43	4	S.E.
	9	49	5	S.S.W.
	10	48	5	"
	11	50	5	S.W.
	12	50	5	"
Hobart	13	49	4	S.S.W.
"	14	51	3	"
	15	49	5	"
	16	56	4	W.S.W.
	17	63	4	N.W.
Wellington	18	59	4-7	N.E.
	—	—	—	—
	—	—	—	—
	—	—	—	—
November	14	64	5	North.
Welling'on	15	51	6	S. by W.
	15	50	5	"
	16	51	3	S.W.
	17	52	3	West.
	18	50	5	"
	19	49	5	"
	20	49	3	"
	21	47	5	"
	22	44	5	S.S.W.
	23	37	5	S. by E.
	24	39	5	South.
	25	46	4	S.S.W.
	26	40	3	N.W. by W.
	27	41	5	N.W.
	28	40	4	S.W.
	29	44	5	S.S.E.
	30	54	2	South.
December	1	52	3	N.W.
	2	65	3	"
	3	66	5	W.S.W.
	4	70	7	"
Rio de Janeiro	5	70	2	S.W.
	6	74	3	S.E.
"	7	74	3	E.S.E.
	8	77	3	"
	9	79	3	"
	10	79	3	S.E.
	11	80	4	"
	12	80	4	E.S.E.
	13	80	3	Variable.
	14	79	3	E.N.E.
	15	75	3	"
	16	72	3	N.E.
	17	68	3	Variable.
Teneriffe	18	67	5	E.N.E.
	19	66	3	E.S.E.
"	20	60	4	Variable.
	21	56	4	N.E. by N.
	22	47	5	East.
	23	45	5	S.E. by E.
Plymouth	24	40	3	E.N.E.
	—	—	—	—
	—	—	—	—

VOYAGE 36.—STEAMER I.

Place and date.		Noon temp.	Wind. Force	Wind. Direction.
1891.		Deg.		
October	4	63	4	South.
Plymouth	5	68	5	"
	6	72	6	S.W.
	7	74	4	West.
Teneriffe	8	75	2	N.W.
	9	73	3	N.E.
	10	77	3	"
	11	82	3	N.
	12	82	0	Calm.
	13	80	2	S.W.
	14	77	4	South.
	15	76	4	"
	16	70	4	S.S.E.
	17	67	4	"
	18	66	4	"
	19	66	3	South.
	20	62	3	S.S.W.
	21	63	3	"
	22	60	6	"
	23	66	8	S.W.
Cape Town	24	55	6	S.S.E.
	25	59	6	"
	26	56	6	West.
	27	45	9	S.W.
	28	44	7	"
	29	42	7	W.S.W.
	30	39	5	West.
	31	42	8	"
November	1	42	7	"
	2	41	7	"
	3	39	6	N.W.
	4	46	6	West.
	5	42	5	"
	6	46	6	N.W.
	7	49	6	West.
	8	49	6	North.
	9	48	7	"
	10	50	8	"
	11	52	6	West.
Hobart	12	69	3	Variable.
"	13	62	2	"
	14	60	4	"
	15	53	2	"
	16	59	3	West.
	17	64	4	"
Wellington	18	67	5	Variable.
	—	—	—	—
December	12	—	—	—
Wellington	12	60	4	North.
	13	59	4	"
	14	46	6	Variable.
	15	42	7	S.S.E.
	16	44	6	South.
	17	43	8	S.W.
	18	40	7	S.S.W.
	19	41	6	West.
	20	41	7	S.S.W.
	21	41	6	S.E.
	22	42	5	South.
	23	47	3	West.
	24	48	3	"
	25	50	Var.	Variable.
	26	55	5	N.W.
	27	52	4	North.
	28	60	2	"
	29	68	4	West
	30	68	4	"
	31	75	3	Variable.
1892.				
January	1	80	4	N.E.
Rio de Janeiro	2	83	3	East.
"	3	78	3	Variable.
	4	76	3	N.E.
	5	80	5	"
	6	82	5	"
	7	81	5	E.N.E.
	8	78	5	E.S.E.
	9	81	4	"
	10	81	3	East.
	11	79	4	N.E.
	12	76	4	"
	13	72	5	"
	14	68	6	"
	15	65	4	"
Teneriffe	16	70	5	West.
	17	58	9	N.W.
	18	58	8	N.N.W.
	19	56	6	"
	20	56	6	South.
Plymouth	21	48	7	East.
—		—	—	—

NOTE.—Force of wind, 0 to 12. Noon temperature, dry thermometer.

ABSTRACT OF LOG OF STEAMERS BETWEEN ENGLAND AND NEW ZEALAND.—YEARS 1891, 1892.

VOYAGE 37.—STEAMER II.

Place and date.	Noon temp.	Wind. Force	Wind. Direction.
1891.	Deg.		
October 31	53	5	N.E.
Plymouth]			
November 1	58	6	East.
2	58	4	Variable.
3	67	3	S.W.
4	65	6	West.
Teneriffe 5	71	4	N.N.E.
6	72	3	,,
7	72	4	,,
8	81	4	,,
9	83	4	,,
10	81	3	N.E.
11	80	4	South.
12	79	4 5	,,
13	77	4	S. by E.
14	75	4 3	S.S.E.
15	75	4-5	S.E.
16	68	5	,,
17	67	2	S.S.E.
18	64	4	S.E.
19	65	4	S.S.E.
20	63	5	S.E. by S.
21	62	4	S.S.E.
Cape Town 22	66	3	S.W.
23	66	5	,,
24	61	8	North.
25	49	7	S.W.
26	43	4	,,
27	45	4	W.S.W.
28	44	4	S.W.
29	45	4	West.
30	45	6	N.W.
December 1	43	7	West.
2	40	6	S.W.
3	45	5	W.N.W.
4	44	7	N.W.
5	41	6	,,
6	51	5	,,
7	49	5 6	N. by W.
8	46	5-4	S.E.
9	54	3-4	Variable.
Hobart 10	58	2	,,
,, 11	64	3	N.E.
12	60	4-5	East.
13	64	5	N.E.
14	68	5	North.
Wellington 15	66	4	East.
1892.			
January 9	—	—	—
Wellington] 10	61	4	N.W.
11	55	6	S.E. by E.
11	57	5	S.E.
12	55	4	N.E.
13	56	4	N.N.E.
14	63	5	North.
15	50	5	N.W. to N.E.
16	46	8	N.E.
17	41	8	E.N.E.
18	45	6	E., N.
19	44	4	E.N.E.
20	41	3-4	N.E.
21	43	3	Variable.
22	43	4	South.
23	47	3	East.
24	50	3	Variable.
25	58	3	S.W.
23	50	3	N.W.
27	60	4	W. & N.
28	57	3-4	S.W. to S.E.
29	64	6	S.W. to W.
30	67	4-6	W.N.W.
31	78	6-4	W. to S.W.
February 1	76	3-4	S.E.
Rio de Janeiro] 2	77	4	,,
,, 3	80	3	N.E.
4	76	3	,,
5	81	5	N.N.E.
6	82	4	,,
7	81	3	N.E. by E.
8	81	3	E.N.E.
9	80	4	E.S.E.
10	72	3	Variable.
11	79	4	N.E.
12	76	4	,,
13	71	4	,,
14	68	3	,,
15	67	3	N.N.W.
16	67	3	North.
Teneriffe 17	66	2	Variable.
,, 18	66	2	,,
19	60	6	W.S.W.
20	59	2-4	Variable.
21	55	3	W.S.W.
22	47	6	South.
Plymouth 23	53	2-4	Variable.

VOYAGE 38.—STEAMER III.

Place and date.	Noon temp.	Wind. Force	Wind. Direction.
1891.	Deg.		
November 28	50	8	South.
Plymouth]			
29	52	5	West.
30	54	4	,,
December 1	60	4	W.S.W.
2	65	4	West
Teneriffe 3	70	4	S.E.
4	71	3	E.S.E.
5	70	5	East
6	78	4	E.N.E.
7	80	4	,,
8	84	2	Variable.
9	80	4	South
10	76	5	,,
11	76	8	S.S.E.
12	75	5	,,
13	70	5	,,
14	68	5	,,
15	66	5	,,
16	65	5	South.
17	64	5	,,
Cape Town 18	62	5	,,
19	60	6	,,
20	53	5	,,
21	54	5	,,
22	47	4	S.S.E.
23	42	4	,,
24	41	4	S.S.W.
25	41	5	W.S.W.
26	45	5	,,
27	44	5	N.W.
28	42	2	Variable.
29	46	4	N.E.
30	48	6	West.
31	48	5	N.W.
1892.			
January 1	47	5	Variable.
2	49	7	N. by W.
3	52	5	N.N.W.
4	51	5	,,
5	55	7	,,
Hobart 6	58	6	West.
7	62	4	N.N.W.
8	62	4	North.
9	63	2	West.
Wellington 10	66	2	,,
—	—	—	—
—	—	—	—
1892.			
February 6	—	—	—
Lyttelton] 7	64	4	East.
7	60	8	,,
8	59	7	E.N.E.
9	54	5	,,
10	51	4	,,
11	54	2	Variable.
12	47	4	South.
13	50	5	S.S.W.
14	48	5	,,
15	44	7	S.W.
16	41	8	S.S.W.
17	41	7	W.S.W.
18	41	7	,,
19	43	5	,,
20	49	5	,,
21	46	2	,,
22	47	3	Variable.
23	50	5	North.
24	59	5	,,
25	65	4	,,
26	70	5	N.N.E.
27	74	6	,,
28	79	5	,,
Rio de Janeiro 29	86	4	,,
March 1	85	2	Variable.
Rio de Janeiro] 2	79	4	N.E.
3	83	4	,,
4	83	4	E.N.E.
5	83	4	,,
6	82	4	East.
7	81	5	E.S.E.
8	80	4	Variable.
9	79	5	N.E.
10	76	6	,,
11	71	6	,,
12	70	6	,,
13	68	6	,,
14	65	5	,,
Teneriffe 15	64	4	,,
16	62	5	,,
17	59	4	,,
18	58	4	,,
19	55	2	Variable.
Plymouth 20	50	4	E.S.E.
—	—	—	—
—	—	—	—

VOYAGE 39.—STEAMER IV.

Place and date.	Noon temp.	Wind. Force	Wind. Direction.
1892.	Deg.		
January 1	54	6	W.N.W.
Plymouth]			
2	58	5 to 3	N. to N.E.
3	63	2	S.W.
4	64	3	West.
Teneriffe 5	—	—	—
6	68	0	Calm.
7	70	2	Variable.
8	75	2	E.N.E.
9	84	2	N.W.
10	85	2 to 4	W.S.W.
11	80	4	S.S.E.
12	82	2	,,
13	73	4	,,
14	77	4	,,
15	73	2-5	South.
16	75	4	S.S.W.
17	74	5-4	South.
18	73	6 4	,,
19	74	6-2	S.W.
Cape Town 20	74	4	W.S.W.
21	71	2 6	Variable.
22	71	4	,,
23	68	4	,,
24	68	5	E.N.E.
25	59	4	W.N.W.
26	46	5	,,
27	52	4	West.
28	55	2	Variable.
29	52	5	N.W.
30	52	4	N.E.
31	52	6	N.W.
February 1	48	6	,,
2	51	6	,,
3	52	8	West.
4	47	6	,,
5	50	4	S.W.
6	56	4-5	North.
7	57	6	N.W.
Hobart 8	—	—	—
,, 9	—	—	—
10	65	4	North.
11	64	6	,,
12	65	10	W.N.W.
13	60	10	North.
Wellington 14	—	—	—
—	—	—	—
1892.			
March 5	—	—	—
Wellington] 6	71	2	North.
7	56	6	South.
7	54	10	,,
8	56	6	,,
9	53	4	,,
10	53	6	,,
11	51	8-6	,,
12	50	4	,,
13	49	2-6	,,
14	47	4	North.
15	48	2	,,
16	46	4	South.
17	46	4	S.W.
18	45	1	S.E.
19	43	6	N.W.
20	46	5	North.
21	47	6	South.
22	48	5	S.W.
23	55	4	S.S.W.
24	58	4	E.N.E.
25	67	6	,,
26	77	6	N.E.
27	80	4	,,
Rio de Janeiro 28	—	—	—
,, 29	83	—	—
30	84	2	S.W.
31	83	1	N.E.
April 1	83	2-4	East.
2	78	2	Variable.
3	83	4	East.
4	85	2	E.S.E.
5	85	2	East.
6	85	2	North.
7	78	2	N.N.E.
8	75	4	N.E.
9	74	4	,,
10	72	4	,,
11	76	2	,,
Teneriffe 12	76	2	,,
13	65	4	North.
14	70	2	,,
15	59	5	N.E.
16	57	4	North.
Plymouth 17	—	—	—
—	—	—	—
—	—	—	—

NOTE.—Force of wind, 0 to 12. Noon temperature, dry thermometer.

STATEMENT OF AVERAGE* NOON TEMPERATURES EXPERIENCED DURING VOYAGES OF STEAMERS BETWEEN LONDON AND NEW ZEALAND FOR THE YEARS 1889, 1890, 1891 AND 1892.

STEAMER LEAVING PLYMOUTH.

	JANUARY.		FEBRUARY.		MARCH		APRIL.		MAY.		JUNE.		JULY.	
	No. of days out.†	Average noon temp.	No. of days out.	Average noon temp.	No. of days out.	Average noon temp.	No. of days out.	Average noon temp.	No. of days out.	Average noon temp.	No. of days out.	Average noon temp.	No. of days out.	Average noon temp.
		Fahr.		Fahr.		Fahr.		Fahr.		Fahr.		Fahr.		Fahr.
	—	50	—	46	—	48	—	51	—	53	—	62	—	68
	1	54	1	49	1	52	1	54	1	53	1	61	1	61
	2	55	2	51	2	55	2	56	2	57	2	68	2	67
	3	57	3	55	3	57	3	62	3	60	3	69	3	69
	4	60	4	61	4	60	4	65	4	66	4	73	4	72
	5	63	5	65	5	66	5	63	5	67	5	73	5	73
	6	66	6	66	6	67	6	68	6	71	6	72	6	76
	7	66	7	67	7	73	7	70	7	74	7	73	7	76
	8	65	8	70	8	76	8	73	8	72	8	77	8	79
	9	73	9	77	9	75	9	84	9	77	9	79	9	80
	10	81	10	81	10	82	10	85	10	79	10	80	10	78
	11	82	11	81	11	82	11	83	11	79	11	80	11	76
	12	81	12	80	12	84	12	82	12	78	12	79	12	74
	13	81	13	79	13	82	13	83	13	76	13	78	13	74
	14	80	14	77	14	80	14	81	14	75	14	78	14	71
	15	78	15	73	15	77	15	79	15	71	15	74	15	69
	16	77	16	73	16	74	16	73	16	67	16	71	16	68
	17	74	17	70	17	73	17	71	17	66	17	69	17	65
	18	74	18	67	18	70	18	66	18	64	18	69	18	62
	19	72	19	68	19	70	19	66	19	61	19	64	19	58
	20	71	20	65	20	66	20	66	20	58	20	64	20	61
	21	71	21	66	21	67	21	65	21	58	21	59	21	61
	22	71	22	64	22	66	22	68	22	55	22	61	22	60
	23	69	23	61	23	65	23	66	23	50	23	60	23	59
	24	67	24	56	24	57	24	61	24	50	24	55	24	56
	25	60	25	49	25	49	25	60	25	46	25	51	25	48
	26	55	26	44	26	45	26	55	26	42	26	49	26	42
	27	52	27	43	27	43	27	56	27	43	27	45	27	41
	28	49	28	43	28	44	28	48	28	45	28	44	28	39
	29	46	29	47	29	44	29	42	29	43	29	43	29	40
	30	46	30	46	30	41	30	47	30	44	30	43	30	41
	31	45	31	47	31	42	31	45	31	44	31	43	31	40
	32	45	32	47	32	43	32	41	32	44	32	44	32	56
	33	45	33	48	33	43	33	38	33	44	33	42	33	39
	34	45	34	49	34	44	34	40	34	47	34	38	34	44
	35	45	35	52	35	44	35	43	35	45	35	40	35	42
	36	45	36	52	36	45	36	43	36	46	36	43	36	42
	37	47	37	52	37	48	37	46	37	47	37	43	37	44
	38	47	38	54	38	50	38	47	38	47	38	49	38	46
	39	52	39	56	39	54	39	52	39	49	39	48	39	49
	40	54	40	59	40	55	40	53	40	49	40	51	40	50
	41	58	41	60	41	55	41	52	41	49	41	52	41	52
	42	59	42	62	42	53	42	56	42	47	42	53	42	52
	43	63	43	63	43	54	43	56	43	44	43	52	43	50
	44	63	—	—	44	49	44	53	—	—	44	54	—	—
	—	—	—	—	—	—	—	—	—	—	45	54	—	—
Mean temperature		61	—	60	—	59	—	60	—	57	—	59	—	58

STEAMER LEAVING NEW ZEALAND.

	APRIL.		MAY.		MAY.		JUNE.		JULY.		AUGUST.		SEPTEMBER.	
		52	—	56	—	53	—	46	—	39	—	—	—	65
	1	53	1	50	1	52	1	46	1	46	1	53	1	48
	2	53	2	50	2	47	2	45	2	45	2	48	2	45
	3	52	3	48	3	46	3	45	3	45	3	50	3	44
	4	54	4	49	4	45	4	44	4	42	4	47	4	43
	5	51	5	45	5	46	5	45	5	37	5	49	5	36
	6	48	6	44	6	46	6	44	6	37	6	45	6	34
	7	47	7	43	7	45	7	41	7	36	7	43	7	41
	8	48	8	43	8	44	8	43	8	36	8	42	8	40
	9	48	9	43	9	44	9	40	9	37	9	41	9	39
	10	45	10	41	10	43	10	41	10	35	10	42	10	38
	11	45	11	41	11	44	11	34	11	35	11	38	11	39
	12	45	12	39	12	40	12	38	12	33	12	42	12	38
	13	44	13	38	13	39	13	39	13	35	13	41	13	38
	14	46	14	37	14	40	14	37	14	32	14	40	14	34
	15	45	15	37	15	39	15	37	15	24	15	41	15	37
	16	53	16	36	16	41	16	40	16	38	16	43	16	37
	17	54	17	40	17	45	17	41	17	38	17	44	17	40
	18	61	18	44	18	50	18	43	18	43	18	44	18	46
	19	62	19	47	19	53	19	53	19	49	19	55	19	53
	20	65	20	60	20	59	20	58	20	58	20	59	20	61
	21	68	21	66	21	69	21	67	21	66	21	63	21	68
	22	70	22	68	22	72	22	75	22	66	22	67	22	73
	23	78	23	74	23	72	23	76	23	71	23	76	23	75
	24	70	24	74	24	73	24	74	24	71	24	76	24	74
	25	78	25	77	25	76	25	75	25	72	25	76	25	75
	26	79	26	76	26	79	26	75	26	72	26	79	26	78
	27	81	27	78	27	79	27	78	27	76	27	78	27	77
	28	81	28	79	28	81	28	76	28	76	28	80	28	78
	29	80	29	81	29	80	29	81	29	76	29	82	29	80
	30	79	30	78	31	79	30	78	30	79	30	82	30	80
	31	76	31	77	31	83	31	78	31	79	31	79	31	79
	32	79	32	77	32	79	32	82	32	78	32	78	32	80
	33	74	33	78	33	76	33	77	33	77	33	79	33	78
	34	74	34	75	34	72	34	75	34	77	34	80	34	74
	35	71	35	74	35	71	35	76	35	75	35	77	35	74
	36	66	36	68	36	67	36	75	36	73	36	77	36	70
	37	66	37	67	37	74	37	70	37	70	37	73	37	68
	—	—	38	64	38	69	38	68	38	68	38	69	38	65
	—	—	39	69	39	69	39	67	39	66	—	—	39	69
	—	—	—	—	40	60	—	—	—	—	—	—	40	59
	—	—	—	—	41	65	—	—	—	—	—	—	—	—
Mean temperature		62	—	58	—	60	—	58	—	55	—	60	—	58
Mean temp. round voyage		62	—	59	—	60	—	59	—	56	—	59	—	58

* The average noon temperatures for the voyages beginning each month are obtained by adding the temperature columns of the three years' tables for that month and dividing by 3.

† The temperatures are taken from the first day of the ocean voyages. The steamers

STATEMENT OF AVERAGE* NOON TEMPERATURES EXPERIENCED DURING VOYAGES OF STEAMERS BETWEEN LONDON AND NEW ZEALAND DURING THE YEARS 1889, 1890, 1891, AND 1892.

STEAMER LEAVING PLYMOUTH.

AUGUST.		SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		DECEMBER.	
No. of days out.†	Average noon temp.	No. of days out.	Average noon temp.	No. of days out.	Average noon temp.	No. of days out.	Average noon temp.	No. of days out.	Average noon temp.	No. of days out.	Average noon temp.
	Fahr.		Fahr.		Fahr.		Fahr.		Fahr.		Fahr.
—	67	—	61	—	58	—	53	—	40	—	54
1	67	1	64	1	61	1	56	1	48	1	52
2	71	2	66	2	66	2	60	2	53	2	56
3	74	3	71	3	70	3	67	3	59	3	59
4	71	4	74	4	75	4	68	4	65	4	61
5	76	5	74	5	74	5	72	5	67	5	65
6	77	6	75	6	75	6	73	6	70	6	68
7	82	7	81	7	78	7	73	7	70	7	69
8	80	8	78	8	83	8	82	8	76	8	75
9	77	9	81	9	81	9	84	9	80	9	79
10	77	10	79	10	79	10	83	10	82	10	81
11	74	11	77	11	79	11	81	11	80	11	81
12	74	12	73	12	74	12	79	12	78	12	76
13	72	13	73	13	70	13	76	13	76	13	76
14	67	14	71	14	69	14	74	14	76	14	75
15	65	15	66	15	67	15	72	15	71	15	73
16	64	16	64	16	63	16	68	16	72	16	73
17	63	17	61	17	63	17	67	17	69	17	71
18	62	18	60	18	61	18	66	18	69	18	70
19	61	19	58	19	60	19	66	19	66	19	69
20	58	20	62	20	60	20	65	20	65	20	69
21	59	21	60	21	62	21	62	21	63	21	64
22	63	22	59	22	60	22	66	22	63	22	67
23	57	23	53	23	54	23	66	23	58	23	63
24	51	24	52	24	49	24	63	24	56	24	59
25	48	25	50	25	42	25	54	25	50	25	49
26	44	26	46	26	43	26	48	26	47	26	51
27	45	27	43	27	43	27	46	27	47	27	49
28	45	28	45	28	43	28	46	28	46	28	47
29	47	29	44	29	41	29	47	29	43	29	46
30	46	30	45	30	42	30	49	30	42	30	44
31	43	31	41	31	45	31	43	31	43	31	45
32	43	32	42	32	44	32	44	32	43	32	46
33	45	33	42	33	46	33	49	33	43	33	47
34	45	34	44	34	45	34	47	34	43	34	47
35	47	35	46	35	47	35	47	35	46	35	49
36	46	36	46	36	48	36	50	36	48	36	52
37	47	37	46	37	49	37	49	37	55	37	53
38	49	38	48	38	54	38	50	38	53	38	56
39	52	39	51	39	60	39	54	39	62	39	62
40	50	40	53	40	55	40	54	40	59	40	67
41	52	41	52	41	55	41	58	41	61	41	61
42	52	42	53	42	53	42	58	42	58	42	63
43	55	43	53	—	—	43	61	43	62	43	61
—	—	—	—	—	—	44	62	—	—	44	58
Mean temperature	59	—	59	—	59	—	61	—	60	—	61

STEAMER LEAVING NEW ZEALAND.

OCTOBER.		NOVEMBER.		DECEMBER.		JANUARY.		FEBRUARY.		MARCH.	
—	61	—	64	—	64	—	—	—	70	—	—
1	52	1	52	1	57	1	60	1	59	1	61
2	51	2	49	2	56	2	57	2	55	2	55
3	52	3	49	3	51	3	58	3	54	3	55
4	48	4	48	4	46	4	54	4	54	4	52
5	48	5	46	5	45	5	57	5	54	5	51
6	42	6	47	6	44	6	52	6	49	6	50
7	46	7	46	7	42	7	52	7	46	7	48
8	45	8	45	8	43	8	48	8	48	8	47
9	43	9	44	9	44	9	45	9	48	9	48
10	43	10	41	10	44	10	47	10	47	10	46
11	43	11	43	11	44	11	46	11	45	11	44
12	44	12	45	12	45	12	47	12	44	12	45
13	44	13	44	13	47	13	46	13	41	13	48
14	43	14	42	14	47	14	48	14	43	14	44
15	45	15	41	15	49	15	48	15	45	15	47
16	45	16	44	16	49	16	55	16	46	16	48
17	48	17	51	17	52	17	59	17	50	17	50
18	52	18	51	18	57	18	59	18	54	18	55
19	57	19	63	19	63	19	68	19	63	19	62
20	64	20	67	20	70	20	70	20	70	20	65
21	70	21	72	21	75	21	76	21	75	21	71
22	72	22	73	22	77	22	76	22	76	22	77
23	75	23	76	23	76	23	82	23	83	23	82
24	76	24	78	24	81	24	77	24	88	24	82
25	78	25	78	25	81	25	82	25	81	25	81
26	78	26	79	26	80	26	82	26	80	26	82
27	81	27	79	27	80	27	80	27	82	27	83
28	81	28	80	28	79	28	81	28	82	28	83
29	81	29	79	29	79	29	82	29	80	29	87
30	82	30	82	30	79	30	80	30	82	30	81
31	81	31	80	31	77	31	80	31	81	31	80
32	83	32	79	32	74	32	76	32	79	32	79
33	78	33	74	33	70	33	71	33	77	33	78
34	74	34	71	34	67	34	69	34	75	34	72
35	74	35	68	35	65	35	71	35	72	35	70
36	69	36	67	36	67	36	67	36	69	36	68
37	67	37	64	37	60	37	65	37	64	37	67
38	69	38	61	38	54	38	61	38	62	38	65
39	59	39	56	39	57	39	61	39	61	39	65
—	—	40	52	40	52	40	59	40	58	40	59
—	—	41	53	41	48	—	—	41	54	41	59
—	—	—	—	—	—	—	—	42	53	42	54
Mean temperature	61	—	60	—	61	—	64	—	63	—	63
Mean temp. round voyage	60	—	59	—	60	—	62	—	61	—	62

* The average noon temperatures for the voyages beginning each month are obtained by adding the temperature columns of the three years tables for that month and dividing by 3. † The temperatures are taken from the first day of the ocean voyages. The steamers starting from England begin the record at Plymouth, the [illegible]

A STUDY OF THE INFLUENCE OF CHLOROFORM UPON THE RESPIRATION AND CIRCULATION.

A CONTRIBUTION FROM THE LABORATORY OF EXPERIMENTAL THERAPEUTICS OF THE JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA.

Being an abstract of a report to Surgeon-Lieutenant-Colonel Edward Lawrie and to the Government of His Highness the Nizam of Hyderabad.

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To anyone who endeavours to view the subject of chloroform anæsthesia in an entirely impartial light two objects raise themselves so high above all others that they form the peaks about which the smaller questions must cluster. The first object on which the judicial eye rests is the firm belief of many clinicians that chloroform may cause sudden cardiac death; the second object to be seen is the statement of the Hyderabad Chloroform Commissions that death from chloroform is never due to cardiac failure. In support of the first belief there exist not only wide clinical observation but also the experimental evidences of a number of investigators. In support of the second statement there is an array of experimental study not equalled by any other research extant, associated with an enormous number of negative observations on man—negative observations because Surgeon-Lieutenant-Colonel Lawrie alone has in 25,000 cases never had a cardiac death.

The controversy concerning the action of chloroform upon the animal organism has been waged so incessantly for many years and has led to such extraordinary efforts for its elucidation and final decision that anyone who attempts to take part in it finds himself swamped by the number of statements and opinions which he is forced to regard. We have therefore approached this research feeling that it was no ordinary task and that a path already so well travelled must be gone over with the utmost care if anything new or of value is to be discovered. In March, 1892, Surgeon-Lieutenant-Colonel Lawrie, whose interest in this subject is recognised by the medical profession all over the world, wrote to one of us (Dr. Hare) asking that another chloroform research be instituted for which the Government of His Highness the Nizam of Hyderabad would pay. The express object of the research was the reconciliation of at least some of the contradictory conclusions reached by various experimenters during the past few years. From the immense number of observations in regard to the action of chloroform in the laboratory and in the operating room it is evident that sufficient data are at hand to give us material to reach positive conclusions and that the contradictory results hitherto obtained must have been reached by misinterpretation and error in experimental method, tinctured perhaps by opinions formed previously to the completion of a line of study. There are certain facts in regard to chloroform which few will deny, the chief of which are that it has the advantage of rapid action without disagreeable preliminary or subsequent symptoms, that its bulk is small and its odour agreeable, but, more important than all, that it is much more dangerous than ether. Though the Hyderabad Commission in their preliminary conclusions (page 30, paragraph 43) assert that ether is as dangerous as chloroform if given sufficiently to produce true anæsthesia, we believe that the safety of ether is so universally recognised that this conclusion of the Commission can only be excused by the supposition that ether has probably been used as little by those who wrote the paragraph as chloroform is used in many parts of America. This possibility is made a probability when it is read that "if surgeons choose to be content with a condition of semi-anæsthesia it can no doubt be produced with perfect safety, though with discomfort to the patient, by ether held rather closely over the mouth. Such a condition of imperfect anæsthesia would never be accepted by any surgeon accustomed to operate under chloroform." That this statement shows, to put it mildly, that the writer knows not whereof he speaks is proved by the universal employment of ether by hundreds of the best surgeons all over the world in preference to chloroform. Further than this, medical literature contains so many statistical papers showing the small percentage of deaths from ether as compared to chloroform that the point need not be further discussed.

There are certain other points in regard to the action of chloroform which may be set aside as settled and therefore not needing further study, being generally received as beyond criticism, and we have made no experiments looking to their reproduction, but we have devoted our efforts solely to the question over which discussion still proceeds. Thus all investigators concur in the statement that chloroform, even in ordinary therapeutic quantity, acts as a powerful and constant depressant to arterial pressure. This conclusion has been reached by Bowditch and Minot and Coats, H. C. Wood and H. A. Hare, Gaskell and Shore, by the First and Second Hyderabad Chloroform Commissions, and by every experiment in the research now carried out which forms this report. There is no evidence to the contrary, and practically it has never been denied. Gaskell and Shore state, however, that chloroform may cause anæsthesia without lowering blood pressure and that it causes primarily a rise of pressure. They also believe that the chief cause in the fall of arterial pressure is cardiac and not vaso-motor depression. The rise we have never seen, except from struggles, and we have never been able to produce anæsthesia without lowering the blood pressure, even when the drug was used in the smallest quantity capable of causing anæsthesia and given as slowly as possible. We agree with the statement of the Hyderabad Commission that a fall of blood pressure always occurs when chloroform anæsthesia is produced. We are also forced, as the result of our studies, to differ entirely from Gaskell and Shore in their statement that the fall of arterial pressure is due primarily to a weakening of the heart's action and not to paralysis (depression?) of the vaso-motor centre. We believe that both factors cause the fall, but that the dominant factor is vaso-motor depression, because, as may be seen in several of our tracings, the pulse waves were quite strong, though the blood pressure, through vaso-motor relaxation, was absolutely to the abscissa line; and we agree with Surgeon-Lieutenant-Colonel Lawrie when he says that no conclusions as to the action of chloroform when inhaled can be drawn from the injection experiments of Gaskell and Shore into the arteries. One of our reasons for this belief is the entire difference in result. Another reason is that any powerful drug injected into the brain will cause a rise of blood pressure. Even nitrite of amyl, the prince of vaso-motor paralysants, will do this. (See Gaskell and Shore, p. 17.) We also believe that results obtained by such interesting methods of experiment as those employed by Gaskell and Shore are not capable of giving us positively reliable information, as the conditions are utterly at variance with those in which chloroform is given to man, and, further, the methods are such as to leave room for fallacious results in spite of the greatest caution on the part of these highly skilled experimenters. Secondly, it is not denied, by anyone that we know of, that chloroform exerts a powerful depressant and paralysant action on the respiratory centre. This is agreed to by clinicians and by everyone who has experimentally studied the action of the drug on the lower animals—witness the results of the collective investigation. Thirdly, it is universally conceded that chloroform is a lethal agent of great power when brought into direct contact with highly vitalised tissues. Apart from these facts there are a number of others in which we find ourselves strictly in accord with the conclusions of the First and Second Hyderabad Commissions. We find that insensibility comes first, then respiratory failure, and finally arrest in every case in the lower animals—in other words, that cardiac arrest never ensues primarily from the inhalation of chloroform. In reaching this conclusion one of us (Dr. Hare) is well aware that his position is directly opposed to his conclusions published in a joint paper by H. C. Wood and himself in the *Medical News* of Feb. 22nd, 1890. The tracings shown in that paper to prove that chloroform was capable of causing primary arrest of the heart are all (except No. 5) those of experiments in which chloroform was *injected directly into the jugular vein*, which is an entirely different thing from its absorption from the lungs into the blood well mixed with air. Even quinine injected into the jugular vein will cause cardiac arrest.

Further than this, this research has shown us that in only one of the three tracings presented by Wood and Hare did death *certainly* occur from cardiac failure, even when the drug was given intravenously—namely, in No. 4. Perhaps, if artificial respiration had been resorted to, recovery would have occurred, as our experiments have proved that it is feasible even after both the heart and respiration have apparently stopped. The pulse-line in tracing No. 3 (Wood and Hare) is more than reproduced by jugular injection in No. 14 of our research, and No. 5 (Wood and Hare) by inhalation in No. 23 (Parts 15 and 16) of this research, and it will be noted that, though the heart failed in these experiments to make a pulse-mark for the time being, it eventually recovered sufficiently to do so or was found beating when the chest-wall was opened or a needle was thrust into the heart. Again in Experiment 13 of our research it is seen that when the pen was practically at the abscissa it suddenly rose again. The heart was in all these experiments very weak, but it recovered rapidly from its weakness, so that we must conclude that the cardiac condition was one of debility or depression and not of paralysis or death.

We find also, as did the Commission, that if the chloroform is stopped early in its use the pressure rapidly rises again, and if the respiration has ceased this often spontaneously returns or can be renewed by artificial respiration. On the other hand, if the chloroform has been given in excess, neither of these results takes place and death may ensue, whatever be done. Of course struggling always disturbs the blood pressure, and because of the greater respiratory efforts of the animal more chloroform is inhaled and more danger is present. In regard to the changes of the pulse tracing under chloroform we believe that vagal irritation produced by chloroform may exercise a very positive influence upon the circulation; but we find that the chief causes for the variations that occur are to be found in the vaso-motor apparatus. At the same time we are convinced that practically this vagal influence may be harmful, thereby differing from the Commission, which thinks that it is an element of safety. Thus we believe that true fatty heart, *plus* ventricular engorgement, *plus* vagal irritation, *plus* possible valvular disease, and, finally, *plus* extreme vaso-motor relaxation, may result in frightened persons in death. Whilst this is not, scientifically speaking, a cardiac death from chloroform, practically the chloroform is the last straw which upsets the cardiac balance. However, Surgeon-Lieutenant-Colonel Lawrie and his colleagues recognise this as well as ourselves. (See paragraph 38). In paragraphs 15, 16, 17, 18 and 19 of the Commission's conclusions it is pointed out that the action of the vagus can never be sufficient to absolutely and permanently inhibit the heart. We of course agree to this, as must everyone who knows anything of experimental physiology, and one of us has already published, with Wood, our belief in this fact, for we stated in the *Medical News* of Feb. 22nd, 1889: "The theory has from time to time found advocates that the vapours of chloroform may, by irritating the larynx and adjacent parts, cause arrest of the heart through a reflex inhibition. To test the possibility of this we have made a number of experiments. When the tracheal cannula is tied tightly into the trachea some distance below the larynx it is evident that the latter organ is isolated from the general respiratory tract and that chloroform injected into it will exert only a local influence. In all the experiments which we have made in the way just indicated the injection has been followed by an immediate and very pronounced primary fall of the pressure, followed after a very brief interval by a rise which usually reaches decidedly above the normal. As an example of one of these experiments we give the preceding tracing. The primary fall of arterial pressure, which has just been spoken of, can scarcely be produced except by reflex inhibition of the heart or of the vaso-motor centres, whilst the secondary rise is probably the result of a reflex vaso-motor spasm. In order to throw light upon this question we have made experiments by injecting chloroform into the larynx after division of the pneumo-gastric nerves, the trachea being ligated so as to prevent the entrance of the anæsthetic into the lungs. In making practical application of the experiment just discussed it must be noted that in no case have we succeeded in completely arresting the heart's action by injecting chloroform into the larynx, and as the chloroform was injected in liquid form it is plain that the irritation was more intense than could be produced by the mere vapours of the anæsthetic, however concentrated; therefore, whilst it must be considered that it is possible for a reflex inhibitory arrest of the heart to occur during the inhalation, such an accident is extremely improbable, and we consider it practically certain that a heart so arrested could, a few seconds later, escaping from the inhibitory control recommence its beat. It certainly has never been proven that chloroform can cause in the human subject permanent reflex inhibitory cardiac arrest, and as our experiments upon the dog have failed to cause such arrest we consider it very improbable that [reflex] cardiac arrest is ever produced in man by chloroform." To this we wish to add: unless the cardiac disease or condition is such as to be unable to withstand any shock whatever.

With the statement in paragraph 20 of the report of the Commission that chloroform injected into the jugular vein has not a paralysant effect on the heart, but an influence similar to that produced by inhalation, we have to entirely disagree, and we cannot understand how results so completely at variance with our own and with those of Wood and Hare could have been arrived at. The tracings we present do not admit of wrong interpretation. Perhaps the difference lies in the fact that in our studies enough water was added to the chloroform to carry it *en masse* to the heart, whereas in the East Indian studies the pure, undiluted drug was injected, had not sufficient volume to reach the heart, and was gradually volatilised in the vein and so produced a gradual effect. We find that the injection of from 2 to 4 c.c. of chloroform into the jugular vein causes arrest of respiration, rapidly followed by cardiac arrest, which is not secondary to the respiratory failure but to a primary action of the chloroform on the heart muscle, which is non-responsive to stimulation. We have made this experiment over a hundred times. It has been denied that chloroform when injected into the jugular vein causes cardiac depression, and the recent experiments of Leaf and his colleagues in Hyderabad have been cited to support this view. In these researches they found, when chloroform was given in excessive amount, the pen falling to the abscissa line and failing to record a pulse-wave, that a needle in the heart muscle continued to beat for many seconds. Whilst at first glance these results, which we have also obtained, seem to prove that the cardiac arrest is only apparent and not real, they have been actually given an importance far in excess of their value. We have proved again and again that the movement of the needle may be due, not to a true cardiac contraction, but to incoördinate contraction of one of the ventricles and to contractile movements of bands of the cardiac muscle, which movements are very often rhythmical enough to make the needle beat regularly. We have found this needle movement taking place even after an injection of chloroform had been sent directly into the heart through the chest wall, and in a heart the muscle of which failed to respond to any strength of faradaic irritation except in those parts which had not come into contact with the poison. Further than this, if an animal is given very large doses of chloroform intravenously or by direct intra-cardiac injection, respiration invariably ceases if the amount is large enough; and if the chest is opened one condition will be constantly found—viz., the heart will be so widely dilated as to completely fill the pericardium almost to bursting, and the cavities, particularly the ventricles, will be engorged with blood. Although they may still be feebly contracting, the contraction is abortive and fails to cause arterial flow. If the drug has been used intravenously by the jugular vein, the blood in the right and left heart will be found to be red if death has come on rapidly; if not, it will be dark and venous. The lungs will be found to be of that peculiar pink hue due to altered blood. If the injection has been cardiac it will be found that the ventricle with which the poison has come into contact has become paralysed, whilst the other is making fairly good efforts at work. When the injection takes place into the right ventricle, so that the poison passes to the left cavity, both ventricles fail to act voluntarily or to faradaism. Chloroform is capable, therefore, of causing death of the cardiac muscle whenever it comes into contact with it, and that there is no possibility of this arrest being due to vagal irritation is proved by experiments in which vagal section preceded the use of the chloroform.

Concerning the influence of other drugs upon the effects of chloroform we also differ from the conclusion of the Commission that no marked influence is felt. We have found atropine to very decidedly postpone circulatory depression due to chloroform.

SUMMARY.

From a careful study of the experiments so far reported, from studies made by one of us some two years ago with

H. C. Wood, and finally from this careful series of experiments, we believe that the subject can be settled by the acceptance of both views in a modified form, or, in other words, that there is no real antagonism in the belief that chloroform kills by depression of the respiration or paralysis of the heart. We very positively assert that chloroform practically always kills by failure of respiration when administered by inhalation, provided—and this provision is most important—that the heart of the anæsthetised person is healthy and has not been rendered functionally incompetent by fright or violent struggles, or, again, by marked asphyxia. By a healthy heart we mean one which has not undergone true fatty degeneration or has not so severe a valvular lesion as to make the slightest variation in the even tenor of the circulation fatal. As positively as we assert that chloroform kills primarily by respiratory failure, so do we also assert that in excessive dose by inhalation it has a depressant effect on the circulation, which is chiefly due to centric vaso-motor depression with final depression of the cardiac muscle itself. Depression of the cardiac muscle alone is never great enough to cause death when the chloroform is given by inhalation; but we believe that gradual asphyxia, with the direct depression of the circulation, may do much towards producing a fatal result, for vaso-motor integrity is almost as necessary to life as an intact cardiac mechanism. This circulatory depression has been considered a safeguard because it was supposed to prevent chloroform from going to the vital centres; but in reality it is no safeguard, because profound circulatory depression is as great an evil as respiratory narcosis. That the circulatory depression may be dangerous is not only evident, but it is stated to be so by the Hyderabad Commission itself at the end of paragraph 8 of their report. This circulatory depression may be so profound that recovery is impossible even with the most thorough artificial respiration, a fact stated by the Second Hyderabad Commission in paragraph 25, which we quote in this paper. This emphasises the fact that we cannot afford to totally ignore the effect of chloroform on the circulation, and we cannot consider the patient to be in danger of circulatory failure only when the respiration ceases, but as soon as it becomes abnormal. On the other hand, it should be remembered that even if chloroform has been given properly the arterial pressure may be so low as to cause no pulse in the radial artery, and yet the circulatory system may be ready to respond at once when the drug is removed. If, therefore, the chloroform is properly administered is there danger of its circulatory effect in man? We think that it is just at this point that our research, and every other research on animals, fails, and necessarily fails, to produce a positive reply. The variation in the action of a drug on a diseased individual from its effect on the normal one is notorious, and we have no right to dogmatically assert that there is absolutely no danger of circulatory depression in man, even if no evidence of failure were found in dogs, because there may be many idiosyncrasies or variations through disease in the human being, which may completely reverse the results of experiments on healthy animals. In other words, supposing that the amount of depression from very full doses of chloroform equals twenty-five units, this amounts to little in the normal heart, but if the heart is depressed twenty-five additional units by disease the depression of fifty units may be fatal, particularly if to this fifty are added twenty-five units more of depression from fright and cardiac engorgement through disordered respiration or struggling. That true depression of the heart muscle may take place under chloroform seems to us to be most undoubted, and we think that the tracings in every research that we have seen support this view. There is always a decrease in cardiac power manifested by the decrease in the force of the individual pulse beat, and this passes away only if chloroform is removed early enough. We also agree with McWilliam that from the very first inhalation of chloroform there is a constant tendency to cardiac dilatation.

We come finally to the all-important questions: 1. Is chloroform a safe anæsthetic? 2. Are we to watch the pulse or respiration during the use of the drug, and what are the signs in the respiratory function indicative of danger to the patient? 3. What is the true cause of death from chloroform? 4. Is death from chloroform possible when it is properly administered? 5. Under what circumstances is the surgeon to use chloroform in preference to the less dangerous anæsthetic, ether? 6. Which is the best way of administering chloroform? To the first question the answer is: Yes, in the majority of cases, provided that it is given by one who is skilled in its use and who not only knows how to give it but how to detect signs of danger. It is not as safe as ether at any time, other things being equal, and never so in the hands of a tyro. To the second question the answer is: Watch the respiration, because as soon as enough chloroform is used to endanger the circulation the respiration will show some signs of abnormality either in depth, shallowness, or irregularity—in other words, the very effect of the drug may be to cause such deep and rapid respiration that an excessive quantity of it is taken into the lungs and continues to be absorbed even after the inhaler is withdrawn. As there is always a fall in pressure under chloroform, it is difficult to feel the radial or temporal pulse, and the respiratory centre recognises the degree of arterial depression which its sister, the vaso-motor centre, has permitted by finding that its blood-supply is insufficient. As respiration fails first it should be watched first. Finally, it is only by watching the respiration that it can be ascertained how much chloroform the patient is receiving. This function is not watched for danger alone, but to indicate the dose. The answer to the third question is that death is always due in the healthy animal to respiratory failure accompanied by circulatory depression, which latter may be severe enough to cause death, even if artificial respiration is used skilfully. Death only occurs in the healthy animal when chloroform is given in excessive quantities. The fourth question is impossible to answer as regards man from the basis of experimentation, as identically diseased states in animals with those developed under various conditions in man cannot be produced. The physician having a case of heart disease should always advise the patient of the danger of any anæsthetic, and he should remember, whether it is wise to tell the patient so or not, that anæsthesia always means a step towards death even in the healthiest of men. In the event of a death under chloroform the physician is not to blame if he has taken proper preliminary precautions and has given the chloroform properly. Everyone is agreed that the patient taking that drug should have plenty of fresh air, and in India it is understood that to all intents and purposes patients are operated on in the open air, at least as compared to the closed rooms necessary in America and Europe. This free supply of air is important whether death is believed to be imminent from cardiac or from respiratory failure, but such a supply matters little to the patient if he does not breathe freely, nor does the dose of chloroform amount to anything if it is not drawn into the chest. The dose of the drug is not the amount on the inhaler but that taken into the chest, and, finally, the amount absorbed by the bloodvessels. The rapidity and depth of respiratory movements are therefore, as Surgeon-Lieutenant-Colonel Lawrie asserts, the entire key to the situation. A windmill over a well is watched to see whether it is pumping into a reservoir a given quantity of water. If the windmill works irregularly, so that it is known that its pumping action is deranged, it is separated from the pump until the wind blows steadily in order that it may pump regularly. Similarly chloroform is withdrawn, as Surgeon-Lieutenant-Colonel Lawrie says, whenever respiration becomes disturbed in rhythm or when struggling disturbs it, because it is the first indication that the drug's action is uncertain and because there is no telling the dose which is absorbed. Whilst watching the respiration will not warn of a sudden cardiac arrest in fatty heart *plus* chloroform depression, neither will the pulse give such warning, and we are confident that the statement of the Hyderabad Commission that the *respiration should be watched* is correct, for we believe, from a long series of observations, that gradual cardiac failure never occurs without producing respiratory changes from the very first. In other words, we do not believe that chloroform can cause serious disorder in a healthy heart without, as a result of beginning disorder, disturbing the respiration; and, secondly, that in a healthy heart a quantity of chloroform sufficient to disorder it will by its direct action disorder the respiration. If, as an extra precaution, one assistant watches the pulse whilst the other watches the respiration, very well; for, though the respiration is the more important function to watch, the man watching the pulse might discover an irregularity which the anæsthetist might not see reproduced in the respiratory action; but, as divided attention generally means a slighting of both objects in view, Surgeon-Lieutenant-Colonel Lawrie is right in insisting on the pulse being let alone. In answer to the fifth question we have several points to offer: 1. Hot climates, where ether is inapplicable and where a free circulation of air increases the safety of the patient. 2. Chloroform may be used

whenever a large number of persons are to be rapidly anæsthetised, so that the surgeon may pass on to others and save a majority of lives, even if the drug endangers a few, as on the battlefield, where only a small bulk of anæsthetics can be carried. 3. Its employment is indicated in cases of Bright's disease requiring the surgeon's attention, owing to the fact that anæsthesia may be obtained with so little chloroform that the kidneys are not irritated, whereas ether, because of the large quantity necessarily used, would irritate those organs. Quantity for quantity, ether is, of course, the less irritating of the two. 4. In cases of aneurysm or great atheroma of the bloodvessels, where the shock of an operation without anæsthesia would be a greater danger than the use of an anæsthetic, chloroform is to be employed, since the greater struggles caused by ether and the stimulating effect which it has on the circulation and blood-pressure might cause vascular rupture. 5. In children or adults who already have bronchitis, or who are known to bear ether badly, or, in other words, have an idiosyncrasy to that drug, chloroform may be employed. 6. Persons who struggle violently, and who are robust and strong, are in greater danger from the use of chloroform than the sickly and weak, probably because the struggles strain the heart and tend to dilate its walls.

The safest method of administration is by Lawrie's or Esmarch's inhaler because these provide free circulation of air and do not distract the attention of the anæsthetist from the respiratory movement by complicated apparatus. An apparatus much like these, in allowing a free amount of air, is the Hyderabad chloroform inhaler, or open-ended cone with Messrs. Krohne and Sesemann's respiration indicator attachment. The Junker inhaler, even with its modifications, is too complicated and cumbersome, and whilst less chloroform is wasted in administering the drug it must all be thrown out of the bottle afterwards. If used at all it should be used with the increased air-supply and respiration indicator of Messrs. Krohne and Sesemann. We agree so heartily with Surgeon-Lieutenant-Colonel Lawrie's conclusions that we give them here: 1. The chloroform shou'd be given on absorbent cotton stitched in an open cone or cap (a depression made through the opening in the inside flannel bag will answer as well). 2. To ensure regular breathing the patient, lying down with everything loose about the neck, heart, and abdomen, should be made to blow into the cone held at a little distance from the face. The right distance throughout the inhalation is the nearest which does not cause struggling or choking or holding of the breath. Provided that no choking or holding of the breath occurs, the cap should gradually be brought nearer to, and eventually may be held close over, the mouth and nose as insensibility deepens. 3 The administrator's sole object whilst producing anæsthesia is to keep the breathing regular. As long as the breathing is regular and the patient is not compelled to gasp in chloroform at an abnormal rate there is absolutely no danger whatever in pushing the anæsthetic till full anæsthesia is produced. 4. Irregularity of the breathing is generally caused by insufficient air, which makes the patient struggle or choke or hold his breath. There is little or no tendency to either of these untoward events if sufficient air is given with the chloroform. If they do occur the cap must be removed and the patient must be allowed to take a breath of fresh air before the administration is proceeded with. 5. Full anæsthesia is estimated by insensitiveness of the cornea. It is also indicated by stertorous breathing or by complete relaxation of the muscles. Directly the cornea becomes insensitive or the breathing becomes stertorous the inhalation should be stopped. The breathing may become stertorous whilst the cornea is still sensitive. The rule to stop the inhalation should notwithstanding be rigidly enforced, and it will be found that the cornea always becomes insensitive within a few seconds afterwards. It is only necessary to add that the patient should be so dressed for an operation that his respiratory movements can be easily seen by the chloroformist In the climate of India this is not difficult to manage, but it is rather more so in that of Europe; so that in this respect, and in this alone, the chloroformist in England is placed at a distinct disadvantage compared with the chloroformist in India.

Note.—Since writing this report two important papers upon this subject have appeared: one is by Drs. Gaskell and Shore, in which they carried out a line of ingenious cross-circulation experiments, and from which they conclude that the fall in blood pressure seen under chloroform is due to cardiac rather than vaso-motor depression; and the other is a communication from Surgeon-Lieutenant-Colonel Lawrie in THE LANCET of Feb. 11th, 1893, in which he refutes the statements made by Drs. Gaskell and Shore and details experiments which, he believes, combat those of the two investigators just named. We cannot help believing that cross-circulation experiments with regard to the action of chloroform must be received with considerable doubt by the practising physician. Even if such work is carried out with the greatest skill the opportunities for error are innumerable, and, whilst results are obtained which, if in accord with other studies, might be accepted as confirmatory, the fact that they differ makes their negative conclusion of little value. The object of the investigator of the action of chloroform is to perform experiments which as far as possible will be counterparts of the employment of the drug for human beings. To the physiologist it is important to study a drug in order that results may be obtained, whether they have a practical bearing or not; but the practising physician only wishes for those points which should guide him in the administration of the remedy. The concluding paragraph of Surgeon-Lieutenant-Colonel Lawrie's latest contribution to the subject states the facts so clearly, and is so in accord with what we have tried to set forth in our own report, that we cannot do better than quote the paragraph: "The Hyderabad Commission's work proves that, whilst Syme's principles are right, there is no such thing as a safe method of chloroform administration. It is no longer a question of the superiority of the London method or of the Edinburgh method; absolute safety can be attained neither by watching the respiration nor the pulse for signs of danger, which are in either case proof of improper administration or of overdosing. Moreover, overdosing may take place whether the anæsthetic is given on lint or on a towel, or on a cap such as we use, or with Junker's or Skinner's or any other form of apparatus. The all-important point is that the breathing shall never be interfered with in any way. Safety under chloroform can unquestionably be ensured, but it can only be so by attending to regular natural breathing; and, whatever method is employed, no one can deny that it is the bounden duty of the chloroformist to maintain natural breathing throughout the whole period of administration. To maintain natural breathing requires careful training and considerable experience, but if these conditions be fulfilled it is impossible to produce anything with chloroform but anæsthesia; and the Hyderabad Commission has shown that anæsthesia alone is entirely free from risk."[1]

DIPHTHERIAL PARALYSIS; ALLOCHEIRIA.

BY WILLIAM GAY, M.D. EDIN., M.R.C.P. LOND.

THE following case is chiefly of interest on account of a rare nervous symptom, which, as far as I am aware, has not hitherto been observed in the course of diphtherial paralysis. It consists of a perversion of common sensory impressions to such an extent that they are localised to an exactly corresponding area on the opposite side of the body. This symptom was first prominently noticed by Obersteiner, who suggested that the condition should be called "sensory allocheiria" or, shortly, "allocheiria" (ἄλλη χείρ). Such a term is rather misleading, as it might at first sight be imagined to refer to the hands alone, whereas the symptom is most often discovered in the legs. I am indebted to Dr. Christy Wilson of Doncaster for handing the case over to me and allowing me to publish it. Briefly reported, it is as follows:

The patient was a girl aged thirteen, whose father and mother were alive and in robust health; one brother and a sister were in similar good health. No neurosis of any kind was known in the family. There was no personal neurotic manifestation at any time. The child had just left school to work in a mill and had always been very strong and healthy. Eleven weeks before I saw her Dr. Wilson had attended her

[1] Provided the drug is not pushed too far and that the patient is in ordinary health. We would prefer to make the last sentence read "anæsthesia can be safely produced by chloroform."

for a very severe attack of pharyngeal diphtheria, which was so virulent that her condition was regarded as hopeless. She, however, gradually recovered from her original illness, but four or five weeks from the commencement it was noticed that fluids regurgitated through the nose and that her once shrill voice was reduced to a kind of falsetto whisper. Soon her near vision became deranged and diplopia supervened. The pupils were noticed by Dr. Wilson to be widely dilated. There was at the time no actual paralysis, but a generally distributed weakness, so that she was unequal to any exertion and stumbled about in walking. The patient was a well-developed and healthy looking girl and made no complaint beyond a feeling of lassitude; on walking towards me, however, she had to support herself by means of the various objects she passed. Romberg's symptom was so extremely well-marked that, standing with her feet together and eyes shut, she would undoubtedly have fallen if I had not caught her. There was considerable ataxia of all four extremities. There was no knee-, wrist-, triceps- or jaw-jerk, and there were no superficial reflexes. All muscular efforts were weak and ill-sustained. The accommodation of the eyes was still defective; the pupils were dilated, but responded to light and accommodation; the internal recti were weak, otherwise the eyes and vision were normal. No contraction of the fields of vision was detected upon rough examination. The colour fields could not be obtained, for want of a perimeter. There was no disturbance of colour vision, as tested by means of Holmgren's wools. The hearing was normal. The sense of smell had remained absent since the defect in the voice was first noticed. The nasal cavities were apparently normal. The sense of taste was not tested, but the fact that the patient could distinguish between some kinds of foods showed that it was probably normal. Slight touches were not felt at all, but firmer ones were referred to exactly corresponding points on the opposite side of the body. This was tested again and again, and created such astonishment in the patient that she would not credit my observation until corroborated by her parents. She was then astonished to find that, upon removing my hand from her eyes, she had localised a touch upon the ear, face, tongue, arms and toes to a corresponding point on the opposite side of the body. On only one or two occasions did she hesitate for a moment in so localising her impressions. There was neither delay in the transmission of impulses nor polyæsthesia. There were no paræsthesiæ. Discrimination of heat from cold was correct, although there was some slight hesitation in detecting finer shades of difference. The conduction of painful sensation was not tested. The muscular sense of all four extremities was extremely deficient. The limbs were put into all kinds of grotesque attitudes, but the only thing recognised was the warmth of my hand in placing them so. Movements of the head and trunk were correctly localised. Her voice at the time would be best described by the term "cracked" and had by no means regained its old power. Unfortunately she could not be persuaded to allow a laryngoscopic examination. The soft palate was only slightly paretic, for the *b* of "rub, rub, rub" was pronounced "rub, rub, rubm." The condition of affairs was evidently rapidly improving, and in about four weeks from the time I first saw her she had, but for a feeling of malaise and the absence of knee-jerks, lost all her symptoms.

I was extremely unfortunate in not having seen the patient at an earlier period, when the symptoms were more pronounced. That the essential nature of the affection was diphtherial paralysis can hardly be doubted. The only question which can arise is whether hysteria, which sometimes supervenes or becomes "tacked on" to the symptoms of diphtherial paralysis, was in any way responsible for certain phases of the case—e.g., the aphonia, anosmia, and disorders of common sensation. I think not, since there was nothing in the hereditary or personal history of the child to favour such a suggestion, and although some of the symptoms are distinctly uncommon in the course of diphtherial paralysis they are for the most part not unknown. Although the age of the girl (thirteen years) does not preclude the possibility of functional nerve disorder, it is suggestive that she was in no way precocious in her development. Perimetric observations might here have proved to be of great value, but unfortunately they were impossible. The aphonia is perhaps the most suggestive symptom of hysteria, but it will be noticed that in point of time this coincided with the regurgitation of fluids through the nose, one of the earliest symptoms of diphtherial palsy. The anosmia was noticed about the same time. Both these symptoms, therefore, seem to be a part of the original affection, and I do not believe myself that any element of hysteria was introduced into the case.

Laryngeal paralyses are uncommon, but by no means unheard of, in diphtherial paralysis; what, however, makes me regret the absence of a laryngoscopic examination the more is that the patient's voice was very similar to that of a man, a tabetic, who was the subject of ataxia laryngis.[1] It will be noticed that there was ataxia of all four extremities; and a certain parallelism between tabes dorsalis and diphtherial palsy will be presently pointed out. Anosmia is another of the infrequent symptoms met with in this case. It might presumably have been the result of nasal diphtheria; but of this there was no evidence. The coincidence of anosmia with retention of the sense of taste had been observed once before by Gowers[2] in a similar case.

The most interesting symptom present was, of course, the allocheiria, of which I have been unable to find any example in English literature, although possibly some mention exists. Obersteiner[3] relates four cases of his own and five from German sources, but in no instance was the symptom so widespread or definite as in the above case. All of them but one, which was hysterical, occurred in the course of tabes dorsalis, which has a certain likeness to diphtherial paralysis; notice, e.g., the loss of knee-jerk at one end of the nervous system coexisting with ocular symptoms at the other, the ataxia, loss of muscular sense, sensory abnormalities &c. The occurrence of allocheiria in the course of diphtherial paralysis need, therefore, excite no surprise. This condition is generally associated with considerable sensory disturbances and loss of muscular sense. The coincidence of these latter symptoms is best explained according to the view entertained by Gowers[4] that the fibres conveying muscular sensibility correspond with the non-decussating fibres of the postero-median column, with which are mixed decussating fibres from the posterior commissure and neck of the posterior cornu conveying tactile sensations; a sclerosis of this area would therefore produce disorders of common sensation and a loss of muscular sense. With regard to the correct appreciation of different shades of temperature Gowers also very tentatively suggests that the fibres conveying these sensations lie in the lateral columns near the antero-lateral ascending tract, which undoubtedly constitutes the path for sensibility to pain. According to this view the discrimination of heat from cold is conducted by non-decussating fibres.

It is very hazardous to offer any suggestion concerning the pathological condition which gives rise to allocheiria. Several recent observations go to show that a very intimate connexion exists between corresponding sensory areas of the two sides of the body, both physiologically and pathologically. Dumontpellier, for example, by etherising one arm in a certain position was enabled to open painlessly an abscess situated in a corresponding area of the opposite side. Recognising this close sensory relationship between the two sides of the body, it may be safe to state as a possible hypothesis that under certain circumstances, when the postero-median column is sclerosed and the decussating fibres conveying common sensory stimuli, and the non-decussating fibres conveying muscular sense impressions, are together put out of court, the remainder of the non-decussating fibres of the antero-lateral tract, which normally only conduct painful sensations and those discriminating heat from cold, may assume the additional duty of transferring common sensory impressions, with which, under normal circumstances, they have nothing to do. If this were possible, such impressions would reach the brain on the same side from which they proceeded and would therefore be referred subjectively to the opposite side. For purposes of illustration one might compare the process with the connexion of a telephonic apparatus with telegraphic wires and the passage along them of vocal messages, for which originally they were not intended, and which indeed would never have been transmitted but for the breaking down of the wires by which they were normally sent. This may seem an extravagant theory, and it may be urged that no connexion has been shown to exist between the decussating and non-decussating fibres. On the other hand it appears to be exceedingly probable that there may be some such connexion, and the fact that common sensory impulses can be conducted, although all motion is lost, when the cord

[1] Brain, vol. x., p. 494.
[2] Diseases of the Nervous System, vol. ii., p. 833.
[3] Brain, vol. iv., p. 153.
[4] Diseases of the Nervous System, vol. i., p. 133.

is very seriously disorganised, suggests that very few fibres comparatively can efficiently transmit these impulses, or, in other words, that when certain fibres are destroyed their functions under certain circumstances can be superadded to those still intact. A somewhat similar process must take place occasionally in those cases of aphasia which recover speech after destruction of the third left frontal convolution. It can hardly be imagined that the corresponding right convolution is normally a mass of non-functionating material, and yet it apparently undertakes occasionally the lapsed duties of speech belonging to the injured convolution and forms endless connexions with neighbouring centres—e.g., the visual, auditory, arm, &c.—in order to carry on the functions of speech, writing, and so on. Both in Obersteiner's cases and in that described above the power of discriminating differences of temperature was retained in spite of the grave disturbance of common sensation and of the muscular sense. According to the before-mentioned theories enunciated by Gowers this would indicate that the non-decussating fibres of the antero-lateral tract were still intact—at any rate those subserving the conduction of stimuli originating in differences of temperature, and probably also others conveying painful impressions, although these unfortunately were not tested. In all these also there were a loss of muscular sense and profound alteration of common sensation, showing that the non-decussating fibres conveying the former and the decussating conveying the latter were together implicated in the postero-median zone. The different pathways leading to the brain from the periphery were therefore blocked, with the exception of the direct road in the antero-lateral tract, and it is by this, I venture to suggest, that common sensory impressions are sometimes vicariously conveyed. It will be remembered that, although a heavy touch was referred to the opposite side, a slight one remained unperceived and was therefore non-conducted. This rather suggests that a certain amount of resistance is offered by the new path and that a considerable peripheral sensory excitation is necessary before it is able to overcome this resistance and be conducted to the brain. Gowers[3] mentions a patient, the subject of tabes, in whom a touch was referred to corresponding points on each side of the body at the same time. In this case I should imagine that the decussating fibres were in great part destroyed, but not wholly, and that common sensory impressions found their way up both these and the non-decussating fibres on account of the relative insufficiency of the former. Such impressions would therefore be referred to each side of the body.

To recapitulate: all the cases of allocheiria that I have been able to find recorded, with the exception of that occurring in the course of hysteria, which sufficiently explains anything bizarre, were accompanied with considerable ataxia and profound disturbance of common sensation. The conjunction of these symptoms indicates a lesion of the postero-median columns, implicating the non-decussating fibres and the decussating fibres proceeding from the posterior commissure and neck of the posterior cornu. In none of the cases here mentioned was there an interference in the condition of stimuli relating to the discrimination of heat from cold, demonstrating probably the integrity of the non-decussating fibres of the antero-lateral tract. Thus the common sensory stimuli, finding their usual channel closed against them, are conducted upwards by these non-decussating fibres and so reach the brain on the same side instead of on the opposite one; subjectively, therefore, they are referred to a corresponding area on the opposite side of the body to that from which the excitation proceeds. This theory will no doubt be considered fanciful, and it is, indeed, only suggested for want of a better.

Poole-road, Bournemouth.

[3] Ibid., p. 295.

NEW HOSPITAL FOR WOMEN IN NOTTINGHAM.—In the presence of a distinguished company of residents of Nottingham and its vicinity, Lady Belper, accompanied by Lord Belper, formally opened the new hospital in Castle Gate, Nottingham. This building provides accommodation for twenty-five or thirty patients, and exhibits the improvements resulting from more recent experience. The cost of the building and the site on which it has been erected, together with the expenses of furnishing &c., amounted to £9000. Against this amount some £4150 had already been raised, whilst the balance was further reduced by the proceeds of the collection made at the meeting, which reached the sum of £670.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, **lib. iv. Proœmium.**

ST. GEORGE'S HOSPITAL.

THROMBOSIS OF LATERAL SINUS; REMOVAL OF CLOT; IMMEDIATE AND COMPLETE RECOVERY.

(Under the care of Mr. WM. H. BENNETT.)

WE published in THE LANCET of Sept. 9th a clinical lecture by Mr. W. H. Bennett on the subject of which this case is an example—septic thrombosis of the lateral sinus. We are becoming more and more conversant with the ordinary signs of this condition, and few surgeons fail to appreciate the gravity of cases in which the symptoms are well marked and in which there is a history of otorrhœa of the duration of months or years. It is, therefore, all the more important that cases such as the following should be placed on record, where there were otorrhœa of only a month's duration, a sudden cessation of the discharge, and the onset of an acute inflammatory condition, with rigor and vomiting. The rigor does not appear to have been repeated or the vomiting to have recurred; there was no record of oscillating temperature, whilst swelling along the course of the internal jugular vein was absent. The symptom on which the surgeon relied was that of post-mastoid tenderness, and the operation proved the correctness of the diagnosis and was followed by a most successful result. It is interesting to note that there was no subdural abscess in this case or in either of the cases described by Mr. Bennett in his lectures.

A youth seventeen years of age was admitted into the Harris Ward, St. George's Hospital, under Mr. Bennett's care, on May 7th last. He stated that he had been quite well in all respects until a month previously, when he had suffered from "influenza," which was followed by some pain in the region of the right ear, but this ceased upon the appearance of some "mattery" discharge on May 1st. The next day the discharge suddenly ceased; a severe shivering attack followed, during which he vomited. The pain in the ear then ceased, but it concentrated itself in the forehead. He became very ill, and was consequently sent to the hospital. On admission the patient was evidently in a serious condition. The face was dusky in aspect and apathetic in expression. When spoken to he seemed to rouse himself with difficulty to answer; he complained of dull pain about the right ear, and of acute pain across the forehead. He avoided a bright light, but there was no real photophobia. The pulse was slow (64) and easily compressible, coming slowly up under the finger. The temperature was 103° F. There was no tenderness over the mastoid bone itself, but in the post-mastoid area deep pressure caused him to flinch. There was discharge from the meatus, and on the posterior wall there was a rounded swelling which seemed to block up the whole canal, so that the middle ear could not be seen. The optic discs were normal. There was no tenderness behind the lower jaw or down the neck. On the following day the condition was unchanged; the temperature fell a little in the morning, but rose again to 102·8° at night. The aural surgeon, Mr. Bull, saw the patient with Mr. Bennett and incised the swelling in the meatus. A little blood only escaped. This was followed in a few hours by some pus, but the patient's symptoms were in no sense relieved. On May 9th he was not so well; the post-mastoid tenderness was greater, but the mastoid itself was not at all sensitive, the drowsiness had increased, and the photophobia was now considerable. The discs were still normal. The frontal pain was intense. The pulse was sluggish and the temperature was from 102·8° to 103·2°. There being no doubt in Mr. Bennett's mind that the sinus was blocked, he trephined and exposed it for an inch and a half (having first opened up the mastoid antrum and given exit to a few drops of pus) and found all pulsation wanting; the sinus felt more resistant than normal, and upon puncturing it with a hypodermic syringe only a drop or two

of blood could be withdrawn. The internal jugular vein was next exposed at about the level of the omo-hyoid muscle and divided between two catgut ligatures. The blocked sinus was then laid freely open, and a clot rather more than an inch and a half in length was cleared out with the scoop-end of a director. The bleeding which was very free, was easily stopped by a plug of gauze, and the wound was brought together with silkworm gut in the usual way. The strictest attention to surgical cleanliness was, of course, observed throughout. Twenty-four hours later (May 10th) the patient was free from pain and perfectly comfortable in all respects; the temperature was 99° and the pulse 76, regular, and altogether normal. On the 11th the gauze plug was removed. The further progress of the case requires but little comment. The healing of the jugular wound was delayed for a short time by the occurrence of some pustular eczema around it. The mastoid wound healed steadily and soundly, and the patient left the hospital on the 29th. He was seen again on Aug. 3rd in perfect health; the wounds were soundly healed, the mastoid region being apparently quite natural, with the exception, of course, of the scar, and insensitive to pressure.

Remarks by Mr. BENNETT.—This case affords a good example of the immediate and permanent benefit to be derived from energetic treatment of thrombus of the lateral sinus at an early stage. It also demonstrates with remarkable force the value of "post-mastoid tenderness" as a sure sign of blocking of the sinus.[1] Beyond the state of the pulse and the general condition of the patient the post-mastoid tenderness was here the only objective symptom of the blocking of the sinus, for there was no tenderness over the jugular vein, and the optic discs were normal. It will, perhaps, have been noted that both in this case and in another described in the lecture already referred to I ligatured the jugular vein as low down as the level of the omo-hyoid muscle. This is considerably lower, I believe, than the spot selected by some operators. My reason for placing the ligatures around the vein at such a low level is that when they are so placed they are more likely to be quite away from the lower end of the clot than when they are applied higher up. This is, I believe, an important point, especially in advanced cases, where the clot may be very extensive; for it is obvious that if a ligature be applied around the clot instead of below it the distal portion of the thrombus may become detached and pass on towards the lung. In fact, under such circumstances the operation may become the means of bringing about the very disaster which its performance is intended to prevent—viz., septic pneumonia. The division of the vein at this low level, it is true, makes the washing out of the vessel above very difficult, if not actually impossible, but personally I have never seen any necessity for this washing out of the vein and do not practise it, as my cases do perfectly well without such treatment.

HULL ROYAL INFIRMARY.

THREE CASES ILLUSTRATING THE DIFFICULTIES EXPERIENCED IN MAKING AN ACCURATE DIAGNOSIS IN ACUTE ABDOMINAL DISEASE.

(Under the care of Mr. H. THOMPSON.)

THERE is frequently great difficulty in diagnosing the cause of an acute suppurative peritonitis, even when it has been decided that the patient is suffering from that disease. But, however difficult it may be, a phrase like that quoted by Mr. Thompson in his remarks is only calculated to do harm, especially when backed up by a name so well known in the department of diseases of the abdomen. Those who take no trouble with their cases may be only too ready to find an excuse for their want of zeal in such a description, and to say that where one so eminent has failed they cannot hope to succeed. Mr. Thompson does not belong to this class and sends an account of his cases, so that we, in publishing them, may help others who may meet with similar difficulties to those with which he had to contend. An important diagnostic sign to be met with usually in cases like Nos. 1 and 2—the presence of thickening in the region of the appendix, which is felt per rectum—does not seem to have been observed. The third case is unusual, inasmuch as the perforation of the gastric ulcer was met with in a male and on the posterior aspect of the pylorus instead of on the anterior surface of the viscus. Dreschfeld says that a gastric ulcer only perforates at the pyloric end of the stomach in 10 per cent. of cases of that disease. For the notes of the first two cases we are indebted to Mr. Carpenter, house surgeon, and for those of the third case to Mr. Savory, a former house surgeon.

CASE 1.—A boy aged eleven was admitted into the Hull Royal Infirmary on May 3rd, 1892. The history given was that on May 1st, about noon, he was kicked (accidentally) on the right side of the abdomen by another boy. He complained of great pain immediately. Shortly afterwards he began to vomit and continued to do so at intervals until and after admission. The pain gradually increased in severity and the abdomen began to distend on the morning of May 3rd. The bowels had not been opened since April 29th. The urine was passed naturally and contained no albumen. The previous history showed that he had never had any serious illness, and was apparently in good health until the time of the accident. The boy, on admission to the infirmary, was thin and rather pale. He lay with his legs drawn up, and complained of pain on the right side of the abdomen. The latter was distended and rigid, and was more resonant on the left than on the right side. There was no dulness, and no tumour was to be felt. The abdomen was tender to pressure to the right of the umbilicus. The tongue was clean and moist, the pulse was 108 and small, and the temperature was 99·6° F. Very soon after admission he was placed under the influence of chloroform, when a swelling could be made out in the right iliac fossa, which was dull to percussion. No fluid was felt in the abdomen. The rectum contained fæces. The liver dulness was normal. Abdominal section was performed in the right linea semilunaris. The mesentery was adherent to the right iliac fossa, where an abscess cavity containing about two ounces of pus was discovered. The intestines were injected. In the appendix vermiformis there was a perforation with a fæcal concretion in the orifice. The appendix was thickened; it was ligatured and removed; the proximal end was touched with a solution of chloride of zinc, the serous edges were stitched, the abdomen was washed out with warm boracic lotion, a drainage-tube was inserted, and then the abdominal walls were stitched up. After this the rectum was washed out and a brandy enema was given. The pulse at the end of the operation was 138 and could hardly be felt. He rallied well, and for two or three days he seemed to be improving, but he eventually died on May 8th, five days after the operation.

CASE 2.—This case was that of a girl aged eleven, who was admitted into the infirmary on May 1st, 1892. The following history was given. For a week previously to admission there had been loss of appetite and a feeling of not being well. On the morning of April 27th she complained of feeling sick, and also of pain in the abdomen. A Seidlitz powder was given, after which she vomited several times and the bowels were moved once. On the 28th she was kept in bed and had linseed poultices applied; the pain was more severe, but there was no abdominal distension. On the 29th she was no better, and Mr. Hartley was called in. On the 30th she was constantly sick; an enema was given, after which the bowels were slightly open. She vomited constantly; the vomit was green. The abdomen was rather swollen. The pain came on in paroxysms, when the legs were violently drawn up. On May 1st Mr. Thompson first saw her in consultation with Mr. Hartley, and advised her removal at once to the infirmary. On admission to the infirmary the patient's face was flushed. The pulse was 108 and feeble; the temperature was 100° F. and the tongue was clean and moist. There was general abdominal pain, the abdomen being distended and resonant. No tumour was to be felt. There was universal abdominal tenderness. The legs were not drawn up. No blood or mucus was passed by the rectum. The urine was normal. At 3.30 P.M., when under chloroform, the left flank was found to be comparatively dull and there was also a sense of resistance there. An enema of a pint and a half of water was given; the first part returned clear, but the latter part returned mixed with mucus and liquid fæces; flatus was also passed. The long tube was now introduced and liquid fæces came away. A belladonna suppository was given. At 7 P.M. the temperature was 97·2° and the pulse 116. The abdomen was relaxed. She vomited twice after the chloroform, but the vomit was not stercoraceous. At 11.30 P.M. the bowels were freely opened. There had been no vomiting since 7 P.M. At 2.30 A.M. she

[1] In the earliest stage of these cases the area of the "post mastoid tenderness" is naturally very limited. It can, however, be invariably detected by the finger-tip placed firmly upon a spot one inch behind and about half an inch above the middle of the external auditory meatus.

began to be restless. The bowels were opened several times and she had vomited once since 11.30 P.M. She died at 5 A.M. on May 2nd. At the post-mortem examination the intestines were found to be matted together with recent lymph, and there was also some purulent fluid in the peritoneal cavity. At the apex of the appendix there was a small perforation in the centre of a black slough. In the appendix there was a small hardened mass of fæces. There was no other lesion.

CASE 3.—This was that of a man aged thirty-eight who was admitted into the infirmary on Jan. 11th, 1891, suffering from acute peritonitis, with great abdominal distension and pain referred to the region of the cæcum. The following was the history given. He had previously had several attacks of pain in the abdomen, but never so severe as on that occasion. The attack had commenced suddenly on Jan. 4th with great pain over the hypogastrium and right side of the abdomen, and was supposed to be biliary colic; it was accompanied by vomiting. The bowels were constipated until Jan. 9th, when they were freely moved seven times. On Jan. 11th he was admitted into the infirmary at 9.30 P.M. The patient was emaciated and anæmic. The pulse was small and rapid. The abdomen was much distended. Rectal examination was negative. He complained of great pain, especially in the epigastrium and right side of the abdomen. At 10.30 P.M. abdominal section was performed. There was general purulent peritonitis, with a collection of stinking pus in the right lumbar region, which seemed to proceed from behind the liver, but no distinct cause could be made out. The vermiform appendix was normal. The abdomen was washed out, a large drainage-tube was inserted, and the abdominal walls were then stitched up. The patient never rallied and died on Jan. 12th at 7 A.M. At the post-mortem examination purulent peritonitis was found to be present. The intestines were much distended. The cause of the peritonitis was discovered to be the perforation of an ulcer on the posterior surface of the pylorus; the contents of the stomach had escaped therefrom and, together with pus &c. thus produced, had passed underneath the liver and into the right lumbar region of the abdominal cavity.

Remarks by Mr. H. THOMPSON.—The difficulties experienced in diagnosing the causes of abdominal mischief are so well known that they have given rise to the phrase—first evolved, I believe, by Mr. Lawson Tait—"that you cannot tell of what wood a table is made until you remove the cloth." In the first case the facts to be noted are the apparently previous perfect health of the patient, the severe blow over the abdomen, followed immediately by great pain, together with many of the symptoms of probable injury of intestine or other lesions, but which abdominal section demonstrated to be caused by the perforation of a previously diseased vermiform appendix of which there had been no symptoms, and which perforation was probably immediately caused by the blow, although it was liable to occur at any time without traumatism. In the second case it is to be noticed that there was a history of previous malaise for about a week, but on admission the diagnosis was most uncertain. When under chloroform there was such a distinct feeling of fulness in the left flank that, in spite of the absence of blood-stained mucus from the anus or of a tumour to be felt there, the case was looked upon as one of intussusception. This diagnosis seemed to be borne out by the results of the treatment adopted—the bowels were well moved, the swelling disappeared, and for a short time the patient seemed to go on favourably. Collapse, however, set in, and she died fifteen hours after admission. Of course, if the symptoms had not apparently improved so much I should have proceeded with abdominal section if the condition of the child would have admitted of it, which was very doubtful. The tumour felt on the left side of the abdomen, which disappeared under treatment, was no doubt a mass of fæces in the rectum and sigmoid flexure; but it was certainly remarkable that even under chloroform no thickening or enlargement could be felt in the region of the vermiform appendix. In the third case, the man only being seen for the first time when *in extremis*, the diagnosis was mere guesswork, and unfortunately was only clearly made out at the post-mortem examination. Probably there had been, during one or more of the previous attacks of pain, slight leaking through the ulcer; this had produced a local collection of purulent material, which had become more or less encapsuled, and it was only on the giving way of this collection into the general cavity of the peritoneum that the serious symptoms developed.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

Some Less-known Factors in Graves' Disease.—Specimens of Exophthalmic Goitre.

THE first ordinary meeting of this Society was held on Oct. 16th, the chair being taken by Dr. DE HAVILLAND HALL, Vice-President, in the unavoidable absence of the President, Dr. Bristowe.

Mr. ARTHUR MAUDE read a paper on Some Less-known Factors in Graves' Disease. He said that by watching cases very carefully and continuously he was convinced that some variation in the size of the thyroid gland was always present even in very early cases. There was little statistical evidence that Graves' disease was unknown in districts where goitre was common, as was commonly stated, but it was rare in India. On the other hand, he had found 15 cases amongst 55 of enlarged thyroid gland in a small country district. Graves' disease was said not to occur in previously goitrous persons, but he had collected 7 cases, of which he gave details. Attention was then turned to the connexion between Graves' disease and myxœdema, and to the results of operation on the thyroid gland for Graves' disease, 20 of which were collected last year by him. He then reviewed the nervous disturbances of Graves' disease which were not due to vaso-motor changes, beginning with the psychoses. He described two conditions as common: (1) a hyper-sensitive notion of duty and (2) an incoherence of ideas; and he described a disturbance of consciousness resembling ambulatory epilepsy. After mentioning the tremor as almost the commonest symptom of the disease, and touching briefly on the existence of convulsions, he described a peculiar form of clonic spasm in a young woman. The bulbar signs and the numerous cases of ophthalmoplegia were reviewed. It was claimed that many of the common symptoms were due to peripheral neuritis—e.g., cramps, hyperæsthesia, symmetrical paresis of the legs, hyperæsthesia, pains and lowered patellar reflexes. Glycosuria was never found in these cases. On the question of pathology Mr. Maude thought that no focal lesion in the sympathetic or medulla could possibly explain the condition, which must be due to some general nerve poison, probably to be found in the thyroid gland. The fact that the thyroid gland was already enlarged, that operations on that gland had nearly always relieved the symptoms, and the connexion with myxœdema were all evidence, he thought, in support of this theory.

Dr. DE HAVILLAND HALL said that Mr. Maude did not allude to the association of intra-nasal charges with Graves' disease. Dr. Semon had removed a polypus from the nose with the actual cautery, which seemed to cure a liability to asthma, but was the starting point of unilateral enlargement of the thyroid gland. The fact that cases of Graves' disease had been cured by intra-nasal treatment seemed to suggest a sympathetic origin in some cases at least.

Dr. PASTEUR said that he had ascertained from a competent authority in Switzerland that, although ordinary goitre was extremely common, Graves' disease was a comparatively rare affection. The general view of physicians there was against altitude having anything to do with the production of the condition.

Dr. BOWLES said that he had met with two cases in which there had been Graves' disease in early life and myxœdema developed afterwards. From personal observation he thought that Kocher was right in his assertion that removal of the thyroid gland produced myxœdema, though if a small portion of the organ was left myxœdema did not develop. Kocher had endeavoured to transplant pieces of the thyroid gland into various parts of the body, and he had seen that operator insert a piece of the thyroid gland of a healthy dog into the tunica vaginalis testis of a boy whose thyroid gland had been removed, and he likewise inserted a portion into the divided femoral artery of the same patient.

Dr. BURNEY YEO had made some observations on exophthalmic goitre fifteen years ago. He showed one case in which there was a left exophthalmos and an enlarged thyroid gland on the right side; on the left side the hairs of the eyebrow and eyelashes had disappeared. Later the thyroid on the left side enlarged, and this was followed by a baldness of the opposite eyebrow and eyelashes. The same crossed phenomena

he had observed in another case. He urged, then, that the general phenomena of the disease, which were probably due to lesion of the central nervous system, had been overlooked in the study of the local manifestations.

Dr. SAVAGE said that his experience led him to believe that ordinary goitre and exophthalmic goitre very rarely occurred together, nor did he accept on purely theoretical grounds the idea that it was due to peripheral neuritis. Most of them were of a general rather than of a local neurotic origin. It was very rarely associated with insanity. In one type of recurrent insanity there was an associated prominence of eyes, enlargement of throat and increased pulsation during an attack, and it was noticed that the remedies which benefited exophthalmic goitre relieved the recurrent mania. In a very few cases of general paralysis he had seen some or all of the symptoms of exophthalmic goitre.

Dr. HERON had noticed two associations with this disease—namely, that the thyroid gland was always more or less enlarged and that patients usually had one of two kinds of bad temper, either an almost insane fury or a kind of sullen savageness. Such persons in these states might lapse into crime, and then a medico-legal question of responsibility might arise.

Dr. MURRAY (Newcastle) said that the thyroid gland was nearly always affected. It was a secreting gland, and if it was removed in a monkey the cachexia strumapriva developed, but the glycerine extract of thyroid gland would remove these symptoms, and the same thing occurred in the treatment of myxœdema. If the gland underwent enlargement hyper-secretion might take place, and this might help to produce the symptoms of Graves' disease; and if this were so any measures which tended to diminish the secretion should tend to improve the symptoms of that malady. In practice this occurred, for inunction of the red iodide of mercury, which tended to diminish the size of the thyroid gland, was accompanied by a beneficial effect on the affection; belladonna, by checking secretion, also was of use. In like manner pilocarpine was beneficial in myxœdema because it promoted over-secretion of the small portion of thyroid gland left. If too large a dose of thyroid gland extract was given in myxœdema the pulse-rate was raised, and it was accompanied by tremor of the hands and sweating of the skin, and in larger doses muscular wasting and weakness followed. If the symptoms of Graves' disease and of myxœdema were compared they for the most part were in contrast.

Mr. BERRY showed specimens from two cases of Graves' disease under the microscope to demonstrate the complete absence of all colloid secretion from sections of thyroid gland, and he showed two other sections from ordinary parenchymatous goitre showing a large excess of colloid in the alveoli. The thyroid gland in Graves' disease was much more homogeneous on section.

Dr. ORD did not regard exophthalmic goitre as more common than formerly, but thought that it was more observed. He was inclined to agree with Mr. Maude as to the relations between exophthalmic goitre and myxœdema; in the former malady there was too much vascularity and too great a proliferation of the secreting structure, which led to a destruction of the gland. He had seen the gland too rapidly reduced by treatment, and the symptoms of myxœdema produced.

Dr. GUTHRIE held that there was increased vascularisation in the early stages of Graves' disease, and quoted instances to show how the gland might vary in size. He believed that pulsating aorta was often associated with an abdominal form of Graves' disease.

Dr. HECTOR MACKENZIE insisted on the necessity for prolonged observation in these cases, and he was not convinced that the disease was due to change connected with the thyroid gland. The relation between goitre and Graves' disease required collective investigation. He had given large doses of thyroid gland extract in cases of Graves' disease, and no bad result followed: this was against the change in the thyroid being at the root of the disease, which tended gradually to subside of itself.

Mr. MAUDE, in reply, said he had found that the question of altitude had no bearing on the etiology of the affection, in which the liability to crime was, he considered, the same as that of any neurosis producing a tendency to acute mania. He had applied a cold coil over the thyroid gland with advantage. He had noticed a variation in the size of the thyroid gland in early cases of myxœdema. He thought that no reliable conclusion as to the secretion could be drawn from microscopic sections. The malady was very chronic in its duration, and a larger series of cases must be awaited before the effect of operation could be properly appreciated.

CLINICAL SOCIETY OF LONDON.

Presidential Address.—Abdominal Section for Pyloric Adhesions.—Excision of Malignant Tumour from Large Intestine.

THE first ordinary meeting of this Society for the present session took place on Oct. 13th.

Mr. HULKE, the newly-elected President, on taking the chair for the first time, delivered his inaugural address. He began with a historical sketch of the progress of the Society, and recalled some impressions of its first President, Sir Thomas Watson, whose election he held to be a happy augury of future success. During the twenty-six years that had elapsed since the foundation of the Society in 1867 many advances in surgery and medicine had been made—advances in which the Clinical Society had ever been found in the foremost marching rank. He mentioned the flourishing condition of the Society at the present time from the numerical point of view, and he then approached the subject of his address by referring to communications in the first volume of the Society's Transactions from Mr. Durham and the late Mr. Campbell de Morgan in illustration of the value of antiseptics in surgery, which value was at that time much discussed and even questioned. He gave some reminiscences of his own early work to show that strict asepsis was imperfectly understood in those days by a few and completely ignored by most surgeons. As an example of the defects in hospital construction, then so common, he gave a graphic account of the insanitary condition of the old hospital in Carey-street—formerly a workhouse, but which in his student days was attached to King's College—where a charnel house existed under the male accident ward and the same theatre was used for operations and necropsies. He held that for the attainment and maintenance of asepsis a strict attention to method and a scrupulous observance of detail were of nearly as great moment as the selection of the agent employed. In the last few volumes issued by the Society there was recorded a series of notable instances of the adoption of surgical measures for treating certain disorders and injuries of the digestive canal which would well repay attentive study. The heavy mortality attending some of these operations, and especially of those for relieving a slowly progressive narrowing of some part of the digestive canal, was too often due to the fact that the malady was allowed to reach such a stage that the greatly lessened strength of the patient materially diminished the prospect of obtaining relief from operation. Referring to cases in which excision of the vermiform appendix was practised, he held that in many instances it was better not to attempt a methodical excision of the appendix, but to be content with freely opening, emptying, and draining the abscess. He thought, in conclusion, that the chief progress of medicine had been in the direction of exact diagnosis, rather than in that of treatment, and he quoted the disorders of the nervous system as being apt illustrations of this lagging of medical therapeutics behind diagnosis. Though the physician appreciated an exact diagnosis, this did not satisfy the patient, who craved for a remedy, and pharmacological research was doing something towards supplying this great want. In this connexion he laid much stress on the value of the reports which were from time to time issued by specially appointed committees of the Clinical Society.

Mr. MAYO ROBSON read a paper on Dilatation of the Stomach and Severe Pain dependent on Pyloric Adhesions, treated by abdominal section and separation of abnormal attachments, with general remarks on visceral adhesions as a cause of obscure abdominal pain. Two cases had been sent to him for operative treatment on account of extreme emaciation dependent on dilatation of the stomach and severe pain in the epigastrium and right hypochondrium. Medical treatment had been previously tried without affording relief. In both cases the same treatment—namely, separation of adhesions of the stomach and pylorus—was carried out successfully, the original cause of the adhesions being in the one case gall-stones and in the other ulceration of the stomach. The cases were brought forward because, although it was known that simple adhesions might produce

serious symptoms, it was not generally recognised that dilatation of the stomach might be cured by their separation. After relating the cases in detail, Mr. Mayo Robson remarked that in many instances of severe abdominal pain, often spoken of as neuroses, the vermiform appendix was distorted and fixed in an abnormal position; the ovaries or Fallopian tubes, or both, were displaced and fixed; and last, but not least, omental adhesions of great variety were present, producing visceral distortion; all of which were curable or relievable by a carefully planned and skilfully performed laparotomy, and that without any mutilation of viscera. He further remarked that although it was difficult to lay down any hard-and-fast rules, yet, personally, he should feel it wise in cases of obscure abdominal pain, after medical treatment had been fully tried and failed, to open the abdomen in order to clear up the diagnosis, and then to adopt that line of treatment which seemed to be indicated. He thought that the cases were of interest, not only from a diagnostic and an etiological point of view, but also from that of treatment, for if some cases of dilated stomach, depending on pyloric distortion, could be cured by simply separating adhesions, this would be manifestly a safer and more satisfactory method than that of dilating the pylorus or performing pyloroplasty or gastro-enterostomy, in all of which the stomach had to be opened. He was afraid that it would appear as if he had included two distinct subjects in one paper—viz., dilatation of the stomach and obscure abdominal pain dependent on adhesion; but he wished to lay special stress on adhesions producing visceral disability, and their capability of cure by operation, and if he had succeeded in showing that adhesions were not as harmless as some observers would lead one to suppose his purpose had been served.—The PRESIDENT congratulated Mr. Mayo Robson on his cases. He remarked that if the adhesions had been the result of ulceration within the stomach they might have been the only barrier to perforation. If the adhesions were broad they could scarcely fail to become re-attached after separation, though if they were mere threads this was not likely to occur.—Dr. FREDERICK ROBERTS said that he had for many years urged the importance of recognising internal adhesions as the cause of obscure abdominal pain, and he had known of two or three cases of dilated stomach produced by adhesions in the neighbourhood of the pylorus. It was remarkable that, although in some cases nothing was found to account for the symptoms when the abdomen had been opened, the patients were relieved by the operation.—Dr. HALE WHITE referred to a case in which there was dilatation of the stomach which was thought to be associated with malignant disease. At the necropsy the gall-bladder was found to be adherent to the pylorus, and the latter was thickened by chronic inflammation. Though there had been no jaundice, the trouble seemed to have been produced by a gall-stone, which had ulcerated its way through the pylorus. Such a case, if treated early on Mr. Mayo Robson's plan, would have been a great success. In another case, after an attack of typhlitis, a woman complained of pain at the menses, referred to the region of the cæcum. It was thought that the vermiform appendix had become adherent to the right ovary, and on operation this was found to be the case. The ovary was removed, together with the vermiform appendix, and there had been no further pain. Dr. GLOVER inquired whether there had been any record of pyrexia.—Mr. PEARCE GOULD asked whether it was easy to determine that there was no narrowing of the pylorus itself. In such a case as that which Dr. White had related breaking down of the adhesions alone would not have effected a cure.—Mr. MAYO ROBSON, in reply, said that peritonitis had occurred in both cases. In many cases when adhesions were separated the viscera would return to their proper positions, and fresh adhesions were not likely to form. It was his impression in gall-stone cases that more benefit accrued from separation of adhesions than from removal of stones. The good done by some abdominal explorations was inexplicable.

Mr. W. EDMUNDS related two cases of Excision of Malignant Tumour from the Large Intestine. The first patient, a man aged fifty, was admitted to hospital suffering from a lump in the right hypogastric region. There was a history of hæmorrhage in considerable quantity from the bowel, but not of obstruction. Laparotomy was performed, a tumour involving the cæcum was found and brought out, the portion of the bowel involved was excised, and the two ends of the bowel were brought together externally. The patient recovered and was now, four years after the operation, in good health. No attempt to re-establish the continuity of the bowel had been made. The second case was that of a man aged fifty-four, suffering from incomplete obstruction. By a median incision a malignant growth in the sigmoid flexure was found and brought out externally, a glass tube being passed beneath it. On the fourth day the portion of the bowel involved in the tumour was excised and the divided ends were sutured together. The bowels acted normally, but a fæcal fistula formed, through which in time the greater portion of the fæces escaped. Subsequently the opening was closed and the continuity of the intestine was re-established, the bowels acting normally. Now, fifteen months after the first operation, the patient was well, there only remaining a minute fistula leading to the bowel. It was remarked that in similar cases, whenever possible, it was desirable to excise the growth and not to be content with a palliative operation. The reason why the growth was not at once excised and the bowel resutured in the second case was from fear of peritonitis from leakage, a danger which, it was hoped, would be avoided by having the line of sutures shut off from the peritoneum.—The PRESIDENT asked what was the condition of the motion voided from the opening in the ileum.—Mr. GOULD referred to a case in which he had opened the cæcum; the patient was quite comfortable, there being a daily evacuation after breakfast and no excoriation after it. Instances like the second case related by Mr. W. Edmunds had been recorded by Allingham, Bryant, Treves and others.—Mr. MAYO ROBSON said that in the Leeds Infirmary the rule followed was that where the symptoms were acute and the gut distended an artificial anus was made, but where there was no special distension and no obstruction excision with suture was practised.—Mr. EDMUNDS, in reply, said that there was considerable excoriation of the skin at first, but this healed later, though the liquid discharge continued. The function of the large intestine was probably to convert liquid into solid fæces. He admitted that it was right treatment to perform immediate suture where there was no distension.

PATHOLOGICAL SOCIETY OF LONDON.

The President's Address.—Congenital Deformity of Lip.—Pyonephrosis of Kidney with Double Ureter.—Abnormalities of Intestinal Tract.

THE first ordinary meeting of this Society for the present session was held on Oct. 17th, Dr. PAVY, the new President, taking the chair.

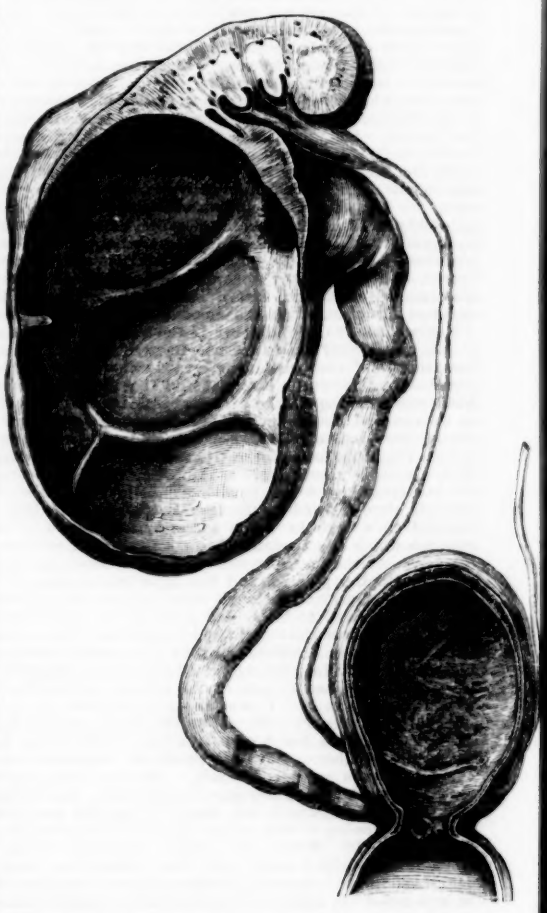
Dr. PAVY delivered the inaugural address. He hoped that the Society would endeavour, even more ardently than it had done, to advance the knowledge of chemical pathology, which he was sure would yield a fruitful harvest to those who would engage in the research. Protoplasm, he said, had three fundamental properties belonging to it. It started from previously existing matter; under suitable conditions it was endowed with power to shape itself into some determinate form; and it could bring about chemical changes in matter in its neighbourhood. Modifications of the surroundings of the protoplasm brought about deviations which came within the province of pathology. He then proceeded to deal with a problem of faulty chemistry. In diabetes mellitus there was an elimination of sugar from the kidney in a manner that ought not to occur. Carbohydrate matter taken into the system was under normal conditions lost sight of, but the carbohydrate matter similarly taken in diabetes passed off with the urine in proportion to the amount of carbohydrate matter ingested. It was a matter of common belief that glycogen passed from the liver to the systemic capillaries and was there used up, and that in the absence of carbohydrate food glycogen was produced by the liver. There was a functional transport of sugar from the liver to the capillaries for destruction, and diabetes might result either from deficient destruction or from excessive entry of sugar into the blood. But a belief in the conveyance of sugar to the capillaries for destruction led us into darkness, and the present accepted physiology was untenable. Many years' study and recent experimental research had convinced him that the glycogenic doctrine was wrong. The liver, instead of being usually charged with sugar, possessed no more than existed in other parts of the system, and even not so much as some parts. Blood flowing from the liver was not more charged with sugar than that flowing to it; indeed, after ingestion of food the portal venous blood was richer in sugar than that in the hepatic vein. There was a fixed condition of the constitutional blood as regarded sugar

from 0·6 to 1·0 per 1000. In portal blood there was often 5 per 1000 or even more. If the amount of sugar in the blood were increased that in the urine also increased at once. The function of the liver was to prevent a fluctuating portal supply of sugar being transmitted to the general circulation. Proteid matter possessed the constitution of a glucoside, and the carbohydrate molecule could be withdrawn from it. M. Pasteur had shown that yeast cells, which consisted of protoplasm and were essentially proteid, would grow in a mixture of cane-sugar, tartrate of ammonia, ash of yeast, and water; and nitrate of ammonia could be substituted for tartrate. This meant production of protoplasm by the incorporation of carbohydrate matter only. The carbohydrate matter was encountered in the yeast as cellulose or glycogen, whereas in the pabulum it was cane-sugar. This modified carbohydrate, in a lower state of hydration, was a result of its passage through proteid matter; it first became part of a complex proteid molecule and subsequently was separated from it by cleavage. The fat was probably also a similar cleavage product If vegetable protoplasm could accomplish this, why should not animal protoplasm also? By the exercise of the protoplasmic power of the cells of the villi and of the liver the carbohydrate was converted into proteid, and through this into fat. If this conversion failed, diabetes in varying degrees of severity followed. With the ingestion of animal food it was the same as with vegetable, only differing in the relative amount of carbohydrate matter to be dealt with, there being in animal food both free sugar and the carbohydrate of cleavage by digestion. Pure albumen from white of egg, if submitted to artificial pepsin digestion, yielded cleavage sugar. Speaking of diabetic cases in their entirety, he divided them into those dependent on ingested carbohydrate and those where the sugar was derived from the tissues, in the latter case the proteid, being a glucoside, probably yielded sugar under the action of a ferment. In the case of the mammary secretion he regarded the lactin, fat and casein as cleavage products. Fatty degeneration resulted from the protoplasm being in a condition favourable to cleavage of the fat molecules; it was a superabundant exercise of a natural change, the splitting off of fat from proteid matter. So, in myxœdema, mucin was a representative of proteid matter, and there was wanting a ferment to carry the mucin to its proper destination, which was fat. He concluded by urging the Society to promote as far as lay in its power the study of pathological chemistry.

Mr. CLUTTON showed the drawing of a woman aged forty-two who had a vertical groove resembling a scar in the soft parts of the chin to the left of the median line. The bone beneath was deficient in amount compared with the opposite side. The alveolus and lip were normal. The mark described was congenital and probably due to imperfect development at the time of fusion of the two halves of the lower jaw. In the upper lip there were two very slight notches of the free border in the usual position for double harelip.

Mr. LEOPOLD HUDSON showed a specimen of Pyonephrosis of the Lower Half of a Kidney with Two Ureters obtained from a woman aged fifty-eight, a patient under the care of Mr. Hulke, who died in the Middlesex Hospital from septic absorption following a neglected and sloughing strangulated femoral hernia on the left side. The lower half of the right kidney was converted into a pyonephrosis containing thirty-two fluid ounces of pus. The ureter leading from this was much dilated and ran down past the bladder to open into the urethra just beyond the vesical sphincter. The upper half of the right kidney showed perfectly normal appearances and a second, quite healthy, ureter led from this upper portion into the bladder at the trigone. The left kidney and ureter and the bladder were quite normal, and there was nothing in the history to account for the origin of the pyonephrosis. The rarity of the specimen and the difficulty of embryological explanation were remarked on. The pyonephrosis was probably secondary to a septic inflammation of the vulva and urethra of old date.—Mr. SUTTON said that there was evidence against regarding the second ureter as being derived from the Wolffian duct. Some of the cases of double ureter in men were extremely interesting as representing persistent Müller's ducts. He referred to some remarkable specimens of hydronephrosis in a symmetrical kidney.

Mr. EDGAR WILLETT showed three cases of Congenital Interruption of the Intestinal Tract: 1. An interruption of the duodenum with dilatation of this region. It came from a child of two days old. The enlarged duodenum was opened in the right loin, to which point it had descended. 2. A similar interruption at the termination of the jejunum, which again was greatly distended. 3. A congenital deficiency in the middle of the œsophagus, so that the pharynx ended blindly just below the entrance of the trachea, while the lower part of the œsophagus opened into the bifurcation of the trachea. This infant also had an imperforate rectum. The pressure of the distended rectum by filling the inlet of the pelvis had pressed on the ureters, and caused both of them and also the pelvis of each kidney to show marked signs of dilatation (surgical kidney).—Mr. SUTTON was much interested in these malformations of the alimentary canal, which could be associated with embryological events. In a case he had recorded the solution of continuity of intestine was just above the bile papilla, and occurred where a diverticulum passed from the primitive alimentary canal to form the liver. In the case of the constriction of the œsophagus he had come to adopt the



view which Mr. Shattock had brought forward; in these cases there was an almost constant communication between the œsophagus below the deficiency and the trachea.—Mr. SHATTOCK said that it had been shown that the stomodœum did not form any part of the œsophagus. The malformation under discussion usually formed opposite to the lower part of the trachea and resulted from closure after the forward growth had taken the place of the anterior diverticulum which went to form the lungs.—Mr. SPENCER inquired if the œsophagus always communicated with the trachea, because gastrostomy had been recommended in these cases.—Mr. SHATTOCK replied that he had seen instances in which there was no such communication.

Dr. VOELCKER showed a card specimen of an Aneurysm of the Aorta Rupturing into the Right Ventricle.

Reviews and Notices of Books.

Asiatic Cholera; its History, Pathology, and Modern Treatment. By A. J. WALL, M D. Lond., F.R.C.S Eng., of the Medical Staff of H.M. Indian Army (retired). London: H. K. Lewis. 1893.

THE author of this book dedicates it to his colleagues in Italy, Spain, Germany, and Hungary in recognition of their kindness and courtesy in aiding him to pursue his investigations in many outbreaks of cholera. He states in his preface that whilst serving in India he was constantly brought in contact with that disease; consequently it embodies the results of his experience of Asiatic cholera in its home in the delta of the Ganges and in its migrations in Europe—a wide and varied experience. The volume consists of 188 pages and a brief index, and it is divided into seven chapters, in which the history of cholera, some conclusions to be drawn from it, the symptoms, pathology, treatment, and etiology of the disease, together with the methods of arresting epidemics of infectious disease in general, are set forth. As regards the summary history of Asiatic cholera, we may remark that it is necessarily a summary only, in which some doubtful points are assumed as matters of fact; for instance, it is apparently assumed as a demonstrated fact that the epidemic which attacked Europe in 1884 had a very definite origin, in that it broke out on June 13th, 1834, at Toulon, directly after the arrival of the ship *Sarthe*, with troops from Saigon, in the French possessions in the East, the inference being, of course, that that vessel introduced the disease and that the outbreaks in Toulon and Marseilles and the epidemic in South France were attributable thereto. But it is not altogether a question of dates; these might, or might not, have been coincidences: it is a question of causal connexion in which the facts require to be accurately and fully set forth. Now, it so happens that the circumstances were the subject of a searching investigation on the part of the chief of the Naval Bureau of Health and the Admiralty inspector, M. Rochard and of Dr. Brouardel, whose conclusions were reported to the Académie de Médecine and published in *The Times* of July 3rd, 1884. Dr. Brouardel affirmed that it was impossible for any vessel to have brought the infection to Marseilles and Toulon, all on board the vessel from China being well during and after a voyage of forty-five days. The men first attacked had not been at sea for months, and had had no connexion with the *Sarthe* or her cargo. Moreover, if we remember rightly, subsequent accounts stated that some fatal cases of cholera had occurred in Marseilles in 1883 and some attacks had taken place in Toulon in 1884 before the first case there had been reported. It might therefore be fairly urged that there was no need to import into the south of France what was already there. The rumour, too, of the suicide of the commander of the *Sarthe* was quite unfounded, and was probably suggested by the suicide of Captain Bellot, of the *Aréthuse*. Again, it is correctly stated that in the case of the cholera-stricken ship *England*, sailing from Liverpool to Halifax in March, 1856, two pilots, who met the ship but did not go on board, were the first persons in America attacked, and it is added that "from this origin it spread all over the country." That the two pilots at Halifax were attacked by cholera and that a local outbreak followed admits of but little dispute, but we have very considerable doubts whether the latter part of the statement as to its spread all over the country from this source rests upon sufficient evidence. The case of the ship *England* is one of the most striking on record. An emigrant vessel, greatly overcrowded and in a very filthy condition, after traversing nearly 2000 miles of ocean, arrived at Halifax after a passage of twelve days. Many of the emigrants were Germans who had passed through districts in Europe where cholera was prevailing. An outbreak of cholera took place on board the vessel during the voyage. Halifax was a healthy city; cholera had not prevailed there for many years. A boat containing two pilots was towed by the ship, but at some distance from it, for several miles, but the pilots did not board the vessel. Both the pilots contracted cholera, one dying; they transmitted the disease to their respective families living ten miles away from the site of the vessel, and one other family was also attacked through the medium, apparently, of infected bedding which had been cast out of the ship. No other cases besides these occurred, we believe, in Halifax or its vicinity. A ship under such circumstances really represents a small cholera locality in movement, and in the case of the *England* the infection seems to have been somehow conveyed from it to the pilots on board the boat towed in its wake, and to have been transported by them to their homes. It will be understood that we are not concerned with the truth or otherwise of the doctrine of the importation of cholera, as to which there is a large amount of evidence; we are simply dealing now with the value of statements as historical records.

In the succeeding chapter there is the cholera record of Hamburg from 1831 to 1892, and a terrible one it is. The author remarks that Hamburg is situated on an alluvial plain near the mouth of a great river—the Elbe—which is here strongly tidal. In position, therefore, it somewhat resembles Calcutta. He then goes on to allude to places where, on the other hand, cholera has never obtained a footing. Speaking of the outbursts of cholera at Hurdwar, Puri, and Mecca, he remarks that it is unnecessary to insist that places visited by great crowds should be subject to the most careful regulations, which should not only be enacted but enforced to prevent the evils that overcrowding cannot fail to entail. Passing over the chapters dealing with the symptoms, pathology, and treatment of cholera—the last-named section is given very fully—we come to that which deals with the etiology of the disease. The author subjects the views advanced by Professor Koch, and so commonly adopted on the Continent, to a severe examination and criticism. He says that the comma bacillus cannot always be found in undoubted cases of Asiatic cholera, and that the severity of the disease bears no relation to the number of bacilli present; but, admitting that a bacillus of characteristic appearance can, after more or less investigation, be found in the larger number of cases of Asiatic cholera, he disputes the position maintained by Professor Koch that the comma bacillus is the sole efficient cause of the disease, and that cholera cannot exist without the presence of the bacillus. He says that after having watched the symptoms in many of the inoculated animals, and examined the viscera with minuteness after death in the pathological laboratories of Germany and elsewhere, he has not seen anything that could possibly be mistaken for cholera by anyone conversant with the disease. Cultivations of the comma bacillus can produce fatal toxic symptoms, but that is, of course, a totally different thing from producing cholera. He details some experiments specially made to determine the point. "Nature," he adds, "does not seem to endorse Professor Koch's views about the effect of acids on the bacillus, for it does not require a large clinical experience of cholera to abundantly verify the fact that cholera is usually produced in an acid condition of the stomach." He details the results of some experimental observations directed to this point. He also adverts, in connexion with the alleged effects of heat and moisture on the comma bacillus, to the phenomena so commonly witnessed in India of the increase of cholera directly after a fall of rain that has succeeded a period of drought, and he dwells upon the drying power of a tropical sun, adding that it is remarkable that the theoretical cause of cholera and the real agent should differ in so remarkable a particular. He also, in further illustration of the same point, speaks of the way in which the cholera endemic at the mouth of the Yang-tse-Kiang comports itself. With regard to the aspect of the question of the diagnosis of cholera by means of the comma bacillus

he reviews the history of the occurrences that took place at Hamburg, the observations made at the Pasteur Institute, in the epidemics in Hungary, in Spain, Hanover, and the Nietleben Asylum, and caustically remarks on the assistance that a heavy mortality appears to give an observer in enabling him to recognise the comma bacillus in an epidemic where it had been previously undiscernible. Speaking of water as a vehicle of cholera the author brings forward an altogether new view—viz., that it is the bed of the stream that is the important agent in poisoning a river; and, amongst other illustrations, he cites in support of that view such rivers as the Ganges, which "are apt to become infected from below: the cholera, taking its origin in Bengal, ascends the river—a thing it could hardly do if it were water-borne." But we must stop. We have only attempted to briefly analyse some of the salient points in this little book. To state where we agreed and where we disagreed with the statement of facts and the arguments and views of its author would entail a considerably larger amount of space than we can give, but we have said enough to indicate that while the volume contains some contentious, or what lawyers would term "arguable," matter it is well worth reading, especially at the present time.

The Diseases of Childhood (Medical). By H. BRYAN DONKIN, M.A., M.D. Oxon., F.R.C.P., Physician, East London Hospital for Children at Shadwell; Physician and Joint-Lecturer on Medicine and Clinical Medicine, Westminster Hospital. London: Charles Griffin and Co., Ltd. 1893.

WE have read this new work with great interest and can recommend it as a distinct addition to the many current books on Diseases of Children. It is based, as Dr. Donkin tells us in the preface, "to a great extent on the records and recollections of nearly twenty years' experience at the East London Hospital for Children and elsewhere, and includes the substance of some lectures given at Westminster Hospital and of a few contributions to the Westminster Hospital Reports." The volume deals solely with children's diseases from a medical point of view, and it will be welcome to those who have already had some experience in this department of medicine as a work, not of a compiler, but of an author recording the results of his own large experience. The book is in every sense a fresh one, and in a great many of the chapters the reader will find opinions stated, and even supported, which are at variance with traditional teaching. Dr. Donkin assumes that his readers have a general knowledge of the diseases discussed, and emphasises only the points relating to childhood, and we think that no one can carefully read him without feeling that in reference to many points in the etiology, pathology and treatment of children's maladies a great deal yet remains to be done; and a book which produces this effect is *ipso facto* calculated to do good. We will mention a few points showing Dr. Donkin's individuality of opinion. In the chapter on "Infantile Wasting" he says that he has long been of opinion that catarrh of the stomach or intestines plays a much less important part in severe cases of wasting than is often taught (p. 9). He thinks that in dentition the pyrexia occasioned by the local irritation is often the only morbid symptom (p. 22). He emphasises the importance of thinking at once of dietetic causes in all diarrhœas, however slight or severe (p. 45). He regards with Henoch the absence of a palpable tumour in intussusception as of but little diagnostic import (p. 75). Ordinary diabetes in children he regards as very rare (p. 100), since he has never seen a case at the East London Hospital for Children. He believes enlargement of the spleen to be only fortuitously connected with rickets (p. 124). He has not a very strong belief in the power of mercury to eradicate or cure infantile syphilis (pp. 138, 139). He thinks that there is a non-contagious membranous laryngitis apart from diphtheria (pp. 165 and 347). Treating of influenza, Dr. Donkin states emphatically that the lung-inflammation proper to it is broncho-pneumonia in the great majority of cases, and that in children a severe broncho-pneumonia may be the chief and only definite indication of influenza. He observed its presence frequently in children in the epidemic of 1891–92 (p. 193). With reference to whooping-cough, he thinks that many cases which from clinical and practical considerations must be called whooping-cough are neither specific nor catching, and that a paroxysmal cough with whooping may be engrafted as a purely nervous incident on ordinary catarrh, apart from the influence of any specific organism (p. 220). He cannot regard torticollis as either an incident in acute rheumatism or as an indication of the rheumatic diathesis (p. 244). He believes that strictly unilateral choreic movements of prolonged duration are of great rarity in childhood, if indeed they ever occur (p. 298).

These quotations will serve to show that Dr. Donkin's book is in every sense of the word a piece of original work, and, as it is remarkably well written and founded on large experience, we have much pleasure in recommending it favourably to our readers.

LIBRARY TABLE.

Real-Encyclopädie der Gesammten Heilkunde. (Complete Dictionary of Medical Science.) Bande I. und II. Bogen I.–X. Wien und Leipzig: Urban und Schwarzenberg. 1893.—We have received the first two parts of a new edition of this dictionary of medical science, which is now making its third appearance under the editorship of Professor Albert Eulenberg. It is completely revised and brought up to date by writers whose official positions are a guarantee of their fitness for the task, and necessarily includes much fresh matter; but every attempt has been made, sometimes with the employment of considerable reconstruction, to keep the size within reasonable limits. The second edition, it may be remembered, comprised twenty-two parts. It is proposed to complete the new edition in twenty parts; but as the first two numbers only bring us to ACC it seems probable that the present work will be considerably larger than its predecessor, though it must be recollected that the letters A and S between them comprise one quarter of the words in the German tongue. The greater part of the first number is occupied by an exhaustive article upon Typhoid Fever ["Abdominal-typhus"] by Professor Zuelzer of Berlin, which is a model of what a contribution to an encyclopædia upon a much-discussed subject should be, being clear and brief on the well-established points, whilst on others it bristles with references to the literary and practical work of well-known physicians of every country. The most important article in the second number is one upon Abortion by Professor Hofmann of Vienna. The success of the previous editions, with regard to which Professor Eulenberg in his preface indulges in some justifiable expressions of gratification, will, we think, be repeated; but care must be taken lest the compilation lose some of its practical value by a tendency to prolixity and unnecessary repetition.

American Medico-Surgical Bulletin. Vol. VI., No. 9, September, 1893. New York: Bulletin Publishing Company.—This is an interesting number. An able editorial article gives a review of the work of inquirers into the cause of cancer, and seems to favour the view of parasitic origin. Surgeon-General Hammond's paper on the value of Animal Extracts in Therapeutics is also worthy of consideration, though it is really a plea for empiricism, for he begs that the extracts may be given an extended trial on the ground of the benefits which follow their use, believing that inquiry into their physiological action will come better later. Much of the number is devoted to the reproduction of noteworthy contributions to the medical press of Europe, so that it is not surprising to find excellent

reading under the head of "Original Lectures and Digests." It also contains a most creditable and vigorous exposure of an attempt to sell an undesirable manual as a work of science.

What Constitutes an Efficient Nurse? By MARIAN C. PINCOFF. London: The Record Press.—The full title of this *brochure* is "What Constitutes an Efficient Nurse? and Other Papers"—a phrase which does better justice to its contents than the abridged title, borrowed from one of the papers in the collection; for the compilation consists of a series of quite disconnected articles contributed at various times by its author to the *Nursing Record*, as various questions have come up for discussion and attracted her notice. Its range includes the largest topics, such as that which furnishes a subject for the title-piece, and the smallest, such as the question whether registered nurses should or should not wear a badge. Miss Pincoff has attained to some skill in putting her points, and her work has been admirably seconded by the publisher. It makes no claim to more than an ephemeral interest, and that claim may well be conceded.

Lyrics. By J. A. GOODCHILD, Author of "Somnia Medici" and other Poems. London: Horace Cox. 1893.—Had we been reviewing Mr. Goodchild's poetical work for the first time we should have gone with some detail into its special claims on public favour—the rich fancy, the imagination that seldom touches but to adorn, and, above all, the large-heartedness and sympathy with mankind that should be the truest note of the "medical singer." On these and other qualities of his genius—the command of metrical form and the fecundity of apt expression, for example—we have, not so long ago, expatiated at considerable length, and now feel ourselves absolved from saying more of this, his latest, volume than that it is quite up to his highest level, and contains additions of peculiar and permanent value to our literature. There are all the energy and swing of his earlier and fresher manner in the "Author's Apology," with which the present series opens; whilst in some of the later efforts there are a maturity, a mellowness, an air as of "the years that bring the philosophic mind," that would have compensated for that younger *brio* and elasticity had they been wanting. Our notice of the book would be incomplete without a word in praise of the "Dedication to William Morris," which is finely conceived and artistically worded.

Sunshine and Shadow, or the Fruits of Failure: a Story of School, Home, and College. By ARNOLD FRANK HILLS. London: *The Vegetarian* Office.—The tone of this book is worthy of commendation, its humanitarian purpose is not less entitled to praise, and but little fault can be found with the style in which the lessons to be conveyed are put forth, though there is in certain parts of the volume an admonitory strain, likely to be somewhat distasteful to boys, who are always ready to think that they know much better than their elders. But works of this class are distinctly useful, and are almost always welcome to juvenile readers, who prefer that the dose of fatherly counsel should be administered in a menstruum of palatable flavour. We do not pretend to follow the author in all his views, many of which must be regarded as extreme—for instance, those with respect to diet.

Movable Kidney and Intermitting Hydronephrosis. (A Thesis for the Degree of M.D. Aberd.). By G. D. KNIGHT. London: Baillière, Tindall, and Cox. 1893.—The author gives a full account of a case of intermitting hydronephrosis which was under his care for more than six years; he also deals with the question in a general way, and has brought together a large amount of useful information. He favours the operation of nephrorrhaphy.

Introduction to the Catalogue of the Collection of Calculi of the Bladder removed by Operation, now at the Royal College of Surgeons. By Sir HENRY THOMPSON, F.R.C.S., M.B. Lond. London: J. & A. Churchill. 1893.—The catalogue, to which this is the introduction, is that of the contents of the cabinet presented to the Royal College of Surgeons of England by the author in 1892. The collection, as we have already informed our readers, contains the calculi, upwards of 1000 in number, and foreign bodies removed by Sir Henry Thompson, and forms a valuable contribution to the College museum. This introduction furnishes a *résumé* of practical work during a period of about thirty-five years, and is a faithful record of facts and observations. The author reviews the changes which have taken place in the treatment of calculus of the bladder and points out improvements which have been made in the instruments used, some of which were due to his own well-known ingenuity. The result of the change, which has taken place during the period under consideration, in the method of performing lithotomy is shown by a table of mortality. Under the method of multiple sittings the mortality was 7·83 per cent., and since 1878, when the method of Bigelow was introduced, it has only been 3·22 per cent.

Hygiène de l'Enfance et de l'Adolescence: ouvrage honoré d'une Médaille d'Argent de l'Académie de Médecine. Le Premier Age et la Seconde Enfance. Par le Dr. E. VERRIER, Ancien Préparateur à la Faculté de Médecine, Lauréat de l'Académie de Médecine (Prix Capuron), Officier de l'Instruction Publique. Troisième Édition. Paris: Société d'Éditions Scientifiques. 1893.—The popularity of this little book is evidenced by the fact that it has reached a third edition. By "le premier âge" is designated the period from birth until the seventh year, or the period of dentition, and as connected with this period there are articles on the nurse, vaccination, dentition, eruptive fevers, accidents &c., whilst "la seconde enfance" commences at the age of seven years and extends to fourteen, or to about the age of puberty. In this portion of the book there are chapters on hygiene, instruction, amusements, deportment, and gymnastics amongst young girls. The reader will find many admirable hints in this little book.

The British Guiana Medical Annual and Hospital Reports. Edited by J. S. WALLBRIDGE, M.R.C.S., and E. D. ROWLAND, M.B. Edin. Demerara: Baldwin and Co.—It is always pleasant to have brought under our notice the work of medical *confrères* who, having gone far a-field, are in a position to imbibe ideas unfamiliar to those who have been left behind. We may be reminded that there is "nothing new under the sun," still fresh aspects of old truths are apt to present themselves when circumstances and surroundings change. The first article, an address given by the Hon. Robert Grieve, M.D., Surgeon-General of British Guiana, embraces a retrospect of the later progress of medical and surgical science, especially during the thirty-six years to which his professiona experience has extended. Then follow some remarks on Vaccination by one of the editors, Mr. J. S. Wallbridge, medical inspector of British Guiana. In this paper the author, having given a short history of the rise and progress of vaccination, proceeds to offer his view of the nature of the operation itself. This will be found to be in close accord with the views generally accepted by the profession at large. Then follows a paper by Dr. C. Grove Young, dealing with the same subject. "The Naked-eye Distribution of Tubercle" is the title of a paper by Dr. E. D. Rowland, which gives voluminous tables setting forth the results obtained from nearly three years' necropsies conducted by himself. An elaborate article on Malarial Fever in British Guiana by Mr. A. S. Ozzard, is accompanied by a series of significant charts.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, PADDINGTON.—SCHOLARSHIPS: WINTER SESSION, 1893.—University Scholarships of £52 10*s.* each: William Fletcher, B.A. Cantab., H. J. Knapp, B.A. Oxon. Epsom Scholarship of £135: S. M. Smith. Natural Science Scholarships of £52 10*s.* each: F. S. Dawe, R. C. Leaning, and A. E. Horn.

Analytical Records
FROM
THE LANCET LABORATORY.

AMINOL.

(THOMAS HODGKINSON, PRESTONS & KING, 81, BISHOPSGATE-STREET WITHOUT, E.C.)

AMINOL appears to be a gaseous body which is set free when certain compounds of the amines group are acted upon by lime. Tri-methylamine $(CH_3)_3N$ is a typical member of the group, in which three atoms of hydrogen in ammonia (H_3N) are replaced by three methyl (CH_3) radicles. It occurs in the flowers of the hawthorn and pear tree, and is a product of the natural decomposition of nitrogenous animal and vegetable substances, being found in tolerable quantity in the waste brine in which herrings have been cured. Waste brine to which lime has been added forms the basis of the now well-known amines process for the purification and sterilisation of sewage, and it is stated that this process is carried on at Wimbledon with distinct success. Two samples of aminol have been submitted to us. Solution D is adapted for general disinfecting purposes and Solution R for medical and surgical use as a dressing, gargle, injection &c. The antiseptic properties of aminol are vouched for by several authorities, including Dr. Klein. On examination we find that Solutions R and D contain certain ingredients in common. Aminol is an alkaline liquid with a peculiar "shrimpy" smell. It contains an amine derivative according to its behaviour when treated with an alcoholic solution of potash and chloroform, the disagreeable smell characteristic of the corresponding carbamine being evolved. The liquid turns turbid when exposed to expired air, and gives all the reactions of calcium salts; it is therefore a lime-water solution of the active agent. Aminol manifestly presents some interesting and important features as a new deodorant and antiseptic, and it will be interesting to learn the results of its application in the treatment of disease and for surgical purposes.

PURE SOLUBLE COCOA.

(C. BARRY & CO., FINSBURY MILLS, E.C.)

This is a prepared cocoa rendered more digestible and palatable by the abstraction of the greater proportion of fat. According to our analysis, the fat has been reduced to about 30 per cent. The cocoa is free from objectionable admixture.

MISCELLANEOUS SUGAR CONFECTIONERY.

(COMPAGNIE FRANÇAISE, PARIS, LONDON, AND STRASBURG. LONDON DEPÔT, BERMONDSEY NEW ROAD, S.E.)

It is gratifying to us to learn how great has been the improvement in the manufacture of sugar confectionery since the time when the memorable Analytical Commission of THE LANCET exposed not only the frauds that were then practised, but the dangers to which the public were exposed by consuming sweetmeats coloured with poisonous substances. Thus on referring to the reports then drawn up we find that lead, copper, and even arsenic were used for the latter purpose. An exhaustive analysis of modern sugar confections, of which the above are a type, convinces us that the confectionery made by leading manufacturers is wholly free from reproach, both as regards the materials and the substances used for colouring them. Even such colours as green, red, and blue yielded no evidence on chemical examination of any injurious colouring having been used. This is satisfactory, seeing how multiplex are the variety and kinds of sweetmeats now manufactured. The specimens submitted to us by the Compagnie Française included bon-bons, fondants, chocolat supérieur, and sugar-coated almonds, all of which were of unquestionable purity.

WHALLEY'S DISINFECTING FLUID AND CONCENTRATED SANITARY POWDER.

(WHALLEY'S SANITARY FLUID CO., 56 & 57, ALDERMANBURY, E.C.)

A decided improvement in the manufacture of antiseptic tar derivatives consists in combining the active agents with resinous compounds and alkali, whereby a very concentrated liquid is obtained which, on the addition of water, forms a milky emulsion. The advantages of this kind of liquid disinfectant forming a uniform emulsion with water are that a solution of constant strength for ordinary use is readily obtained, that the oil it contains is adherent to the surfaces to which it is presented, and that it produces no greasy stains. The preparation above described possesses these properties. It is a dark-brown viscid fluid of marked alkaline reaction, and gives with water a milky fluid from which the tar oils may be readily separated by the addition of an acid. It is evidently a powerful antiseptic and disinfectant. The powder yields on heating a notable quantity of oils, which from the fact that they are soluble in water and give the characteristic reaction of phenol bodies may be regarded as consisting largely of tar acids, including carbolic acid itself. The absorbent is chalk coloured a deep rose with an aniline derivative.

SEEDLESS CARAWAY CAKE.

(W. J. BUSH & CO., ARTILLERY-LANE, LONDON.)

Not a few people object to the presence of caraway seeds in cake, although they like the flavour which the seeds impart to it. Caraway seeds not only cause some inconvenience through becoming lodged between the teeth, but they are apt to set up irritation throughout the alimentary tract, and it is well known that the seeds pass through the system quite unchanged. These objections are entirely overcome by the use of "caraway flavour," which is an extract made from the finest caraway seeds, and containing, therefore, the aromatic seed principles. We have examined a seedless cake made in this way, and found it to possess a caraway flavour even more agreeable than when the seeds are employed. The improvement is one of some importance since the flavour of caraway is very popularly esteemed.

SPARTAN SAUCE.

(JOHN MAYNARD & CO., HAMMERSMITH.)

The composition of preparations of this class is often obscure, but we have satisfied ourselves as to the nature and quality of the ingredients used in the above sauce. In these respects, as both microscopic and chemical analysis testify, it is free from all objection, the fruits and vegetables used in its manufacture being evidently sound and of a choice description. The flavour is delicately piquant, resembling mild Indian chutnee, and care has obviously been exercised to exclude from the formula condiments and spices of a too pungent or irritating character. It affords a really excellent and wholesome relish.

HYGEIAN FLOUR.

(WILLIAM HAY, FLOUR MILLS, GROSVENOR-STREET, HULL.)

The results of both chemical and practical tests convince us of the superior quality of this flour. In the laboratory its composition was found to approach the maximum with regard to nitrogenous and mineral constituents, whilst experiments which were instituted in the kitchen confirmed these conclusions, judging from the excellent glutinous character of the dough produced and the rich wheaten flavour of the bread subsequently obtained. Three varieties of Hygeian flour were submitted to us, distinguished as follows: pearl white, double super, and whole wheatmeal—the latter, according to the microscope, containing branny particles. We have on several occasions expressed our approval of the attention that is being directed to the improved production and manufacture of such important articles of diet as bread and flour. From a description that has reached us, the above

manufacturer is evidently fully alive to the improvements required in this direction, as is evidenced by the fact that he has had mills erected of the most modern type for the production of flour from the finest selected wheat.

KINGZETT'S SULPHUR FUMIGATING CANDLE.

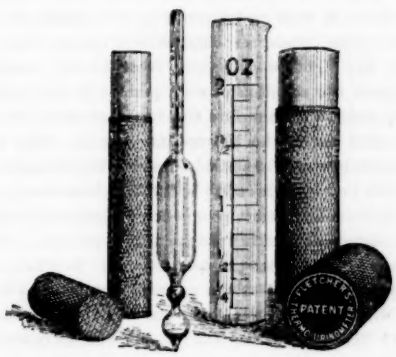
(THE SANITAS COMPANY, LIMITED, THREE COLT-LANE, BETHNAL GREEN, E.)

Sulphurous acid gas is probably the most powerful disinfectant for all ordinary purposes, and being a gas is more searching in its effects than solid or liquid agents. The gas is easily obtained, as it is the sole product of the combustion of sulphur in air—a combustion, however, which as ordinarily carried out occasionally presents some difficulties. Hence the convenience of the sulphur candle, which is made in two forms, one in which the sulphur is simply moulded in a tin dish, and the other in which the dish is provided with a gutter, to be filled with water. By the latter arrangement the evaporation of water vapour may at the same time be effected. We find the sulphur contains a small proportion of nitre which materially aids the combustion. Each candle holds about a pound of sulphur, and is therefore capable of yielding 334 litres, or nearly 12 cubic feet, of pure sulphurous acid gas (SO_2) at normal temperature and pressure.

New Inventions.

A THERMO-URINOMETER.

IT is well known that the specific gravity determinations of liquids are of little value unless they are made at a definite temperature; in all accurate work, therefore, this fact has hitherto involved the use of a thermometer in addition to the ordinary hydrometer. But by the ingenious device lately introduced by Messrs. Fletcher, Fletcher, and Stevenson of 21, Mincing-lane, the use of a second instrument is avoided. Inside the ordinary urinometer, which is of course a specially graduated form of hydrometer, there is blown in one piece a most delicate and sensitive thermometer, so that the physician



when taking the specific gravity of a sample of urine does not incur the inconvenience of having to employ a separate thermometer or of making random allowances for differences in temperature: an advantage which all those who wish to make as accurate an observation as possible will greatly appreciate. The thermo-urinometer is fitted into a small leather tubular case which packs inside a graduated urine-testing cylinder. The whole is contained, as a reference to the accompanying engraving will readily show, in a leather case, which may be easily carried in the breast pocket.

AN IMPROVED PRIMARY BATTERY.

A NOVELTY at once striking and ingenious has been introduced into the construction of the primary electrical battery, by which many of the objections and drawbacks to the use of ordinary primary batteries are entirely obviated. The improvement is due to Mr. H. C. W. Emery, and the chief feature of the invention consists in the shape of the cells. These are so constructed that when placed in an upright position the elements (carbon and zinc) are immersed in the exciting fluid (in this case chromic acid), but when placed horizontally or on their sides the fluid is no longer in contact with the elements, and thus the chemical action, and consequently the current, ceases. The advantage of this arrangement is obvious; waste is prevented, the consumption of the zinc only proceeding as long as the current is being used. We recently had an opportunity of examining a battery composed of four cells enclosed in a convenient and portable box constructed on this principle. In the normal position a current was obtained yielding a glow-light of eight candle-power and of sufficient force to drive a small motor. By simply turning the box over on to one of its sides the current could be stopped and all chemical action checked; at the same time, and with ordinary care, there need be no leakage of corrosive chemicals. The cells are shaped like a ship's rudder, the elements being suspended vertically from the mouth, which is situated on the extreme right or left of the cell. The invention, which is being brought out by Mr. J. R. Howarth of 243, Pentonville-road, is manifestly capable of many useful applications.

THE SALE OF ICE-CREAMS:

IMPORTANT DECISION.

SOME time ago the Glasgow medical officer of health traced a case of fever to ice-cream purchased in the city, and as this trade has greatly extended in recent years the sanitary authority determined to ascertain whether they had the power to cause ice-cream shops to be registered and inspected under the Dairies Orders. Intimation was accordingly sent to all ice-cream vendors in Glasgow asking them to register themselves as purveyors of milk. Of 318 to whom circulars were sent 140 complied, and, in order to test the question, an action has just been brought before the sheriff by the sanitary authority against one of those who had refused to register. The defendant stated that in the process of manufacture all milk was brought to the boiling point. About two-thirds of ice-cream consisted of milk, the remainder being made up of cornflour, sugar, eggs, and sometimes a little annatto for colouring purposes. He also stated, however, that he was a baker, and that milk scones and custard cake contained a larger proportion of milk than did ice-cream—the suggestion apparently being that if ice-cream vendors had to be registered, so also should bakers. He lived in a house apart from his shop, and agreed that ice-cream dealers who lived in their back shops should be brought under sanitary supervision and should be made to live elsewhere. The sanitary inspector stated that all luncheon-rooms which sold milk in the city were registered. In giving judgment the Sheriff said that the object of the statute was to prevent milk from carrying disease, and that it had been proved to him that this congealed milk had been known to carry disease, and that after boiling it might become infected. His opinion was that the Legislature had had in view such a case as this, and that the mere fact that milk had undergone some manufacture did not prevent its being milk, nor the seller being a purveyor of milk. He therefore decided in favour of the sanitary authority, but dismissed the accused with an admonition. The agent for the accused intimated an appeal to the High Court.

THE LANCET.

LONDON: SATURDAY, OCTOBER 21, 1893.

THE huge experiment of making public provision without charge "for any person reasonably believed to be suffering from fever, or small-pox, or diphtheria" continues to be made under very straitened circumstances, involving public discredit and great domestic misery. We have for many months past directed public attention to this subject in its manifold bearing, and now it is beginning to be recognised as one of the most difficult, as it is certainly one of the most urgent, of public questions. There is an apparently unexampled prevalence of scarlet fever. We say "apparently" because, though we now know roughly the number of cases of scarlet fever and diphtheria, we had not the means of knowing them prior to the passing of the Infectious Diseases Notification Act. We cannot say with any accuracy what is the proportion of scarlet fever cases at present to the number in former epidemics, but there is every indication of an unusual, if not an unexampled, prevalence. The daily newspapers contain pitiful stories of numbers of such cases in one house with no proper accommodation for them; and the instances in which these cases are published must be only a small proportion of the whole number. Some estimate of the proportion may be gathered from the statement of notifications and admissions during the fortnight ending Thursday, the 5th inst., made at the ordinary meeting of the managers of the Metropolitan Asylums Board on Saturday last. During this fortnight the number of notifications of the cases admissible into these hospitals was: scarlet fever 2439, diphtheria 848, enteric fever 193, small-pox 33, and other diseases 647. The notifications of admissible cases in all were 4140, whereas the actual admissions were 777 or little more than a fifth part of the actual cases in the metropolis. Though we think that all cases which can be properly treated and isolated at home should be so treated, yet we must admit that the disproportion between the above numbers of admissible and admitted patients implies the existence of very numerous cases in houses where it is next to hopeless to expect any effective isolation. There is a certain lower middle class section of the population which suffers almost more than the poor suffer. The very poor are entitled to the services of nurses who under good rules can do much to prevent the spreading of the disease in their houses—even, it has been said, in cases where the entire family occupied only one room. "In four instances one child only (of several) had scarlet fever, and, being too ill to be moved, was nursed throughout the illness to convalescence in the same apartment with the rest of the family." We quote from an account of "Results of an Effort to Prevent the Spread of Infectious Disease" in the Paddington and Marylebone district by its District Nursing Association. But such voluntary nursing associations could not pretend to deal with serious epidemics. It is certainly remarkable to read of the control of a disease like scarlet fever in a family occupying one room, and it implies very meritorious work on the part of the nurse; but it is vain to rely on such work for staying the progress of an epidemic of vast proportions. Besides, there are large classes of people for whom such voluntary associations would decline to work—e.g., small tradesmen, whom they would consider as unentitled to gratuitous nursing. Such classes are apt to fall between two stools. Failing admission into the London Fever Hospital, which is one of the best appreciated hospitals in London, or into the hospitals of the Metropolitan Asylums Board, they are thrown back on their own domestic resources. Serious measures of isolation and disinfection are scarcely practicable. The result is seen in the multiplication of cases in a house and doubtless in the dissemination of the disease from such centres in various ways. The whole subject is in a chaotic state and needs to be reconsidered. Such provision as we have greatly exceeds that which those who inquired into the subject ever thought would be necessary; at the same time it falls short of what is required by the present state of the law. Those who inquired into the needs of London with regard to infectious diseases and hospital accommodation only contemplated the reception of the sick, insane, infirm, or other classes of the poor chargeable in unions and parishes in the metropolis, and it was with this restriction that the first provision was designed. Under later legislation expenses were recoverable as a debt from the patient by the board of guardians of his union. Under still later legislation the patient and his relatives are no longer liable, and the expenses are paid out of the Metropolitan Common Poor Fund—a fund raised by contributions from the several unions, parishes, and places in the metropolis assessed according to rateable value upon precepts issued by the Local Government Board. It may gratify many comfortable people who receive the advantages of these hospitals, to the exclusion of those for whose benefit they were primarily meant, to learn that by Section 80, cl. 4, their maintenance is not considered to be parochial relief, alms, or charitable allowance, depriving them of any right or subjecting them to any disability. Nevertheless the situation of such persons is not a flattering one, and it does not alter the fact that their expenses are defrayed out of the Metropolitan Common Poor Fund. The present state of affairs is indefensible. The indiscriminate relief of all persons believed to be suffering from fever, small-pox, or diphtheria, whether poor or not, presupposes a hospital accommodation double that which exists at present. Are our politicians and statesmen prepared for this? In other words, are they prepared to assume a parental responsibility in face of the whole or three-fourths of the infectious diseases of London? There may be much to be said for such a course; but it would be a new departure of a grave character. The wholesale provision of hospital accommodation does not as yet seem to have perceptibly lessened the amount of infectious disease. It can scarcely be said that the public have deliberately accepted such a responsibility. The legislation by which it has been imposed on them has been unannounced and undiscussed; and before further developments of it are attempted every information should be gained as to the working of the present arrangement. Of course the justification of such provision, which costs the metropolis several hundred thousands a year, is that it is for the public good and in the public

interest. This may be so, but it has not yet been demonstrated; and even if it admits of demonstration that where notification and isolation are enforced epidemics are controlled, much further information is needed as to the best way of applying such measures with efficiency and without demoralisation.

ALTHOUGH the Report of the Select Committee on Death Certification has already been dealt with at considerable length, there are still several very important points to which we have not alluded and which demand a brief notice. One of these is that the Committee, as might have been expected, perceived the importance of medical practitioners being fully protected in the honest discharge of their duty, either in giving or in declining to give a certificate of the cause of death. They saw that the Registration Act of 1874 was defective in that it did not specify the cases in which a certificate should not be given—a defect which has been the cause of endless trouble and of placing medical practitioners in a most invidious position. On this point their report is very plain. "Your Committee concur in the opinion that it is desirable to define as precisely as may be possible the circumstances in which a medical man in attendance on a case should not give a certificate of death, and it appears to them to be proper that he should not do so in any case in which he is unable to certify that the death is due to disease. In all cases in which he does certify, he should include in his certificate a statement pointing to the absence of accident, poison, violence, or criminal neglect." But at the same time the Committee fully recognise the fact that certificates are too often given very loosely and even recklessly. As a preventive against the former we find, "Your Committee consider that attendance 'during last illness' should be defined as meaning personal attendance by the person certifying upon at least two occasions, one of which should be within eight days of death." Nothing can be more reasonable than this. As regards carelessness the report states: "The attention of your Committee has been directed to the fact that much carelessness prevails amongst medical men in the matter of filling up the death certificate. This carelessness is, perhaps, to some extent to be ascribed to causes previously adverted to—i.e., want of more precise definitions &c.,—and there can be little doubt that it also arises from a failure to appreciate the responsibility of giving a certificate of death." After affording some illustrations of this and of Dr. OGLE'S complaint of the inadequate manner in which the cause of death is set forth, the report proceeds: "Your Committee think that, in order to remedy this condition of affairs, medical men should be required to furnish the Registrar-General, as far as possible, with such information as may be necessary to complete certificates given by them. ..... Your Committee consider that it is of considerable importance that at the time of issue of a certificate the counterfoil should be fully and accurately filled up." Thus it will be seen that the Committee have not overlooked the responsibilities of medical practitioners, though they have shown, as we have seen, every wish to do them justice in discharging an important though wholly unremunerated duty.

Another matter to which the Committee refer at some length is the mode in which coroners' inquests are conducted, especially with regard to the reception or exclusion of medical evidence, and the ordering or not of post-mortem examinations. If every death is to be certified by a medical practitioner, coroner, or procurator-fiscal, it is only just that there should be a proper inquiry, so as to elicit the cause of death. At the present time it is a constant grievance with many a medical practitioner that after he has declined to give a certificate, and has referred the friends of his deceased patient to the coroner at the risk of losing them as patients, he is ignored by the coroner altogether, or perhaps the coroner may decline to hold an inquest at all, contenting himself with an informal inquiry. The Committee show by their report that they have fully considered this point. "The preliminary inquiries in a case referred to a coroner are usually made by his officer, who frequently is a parish beadle or police officer. In practice, it is not unusual for it to be left to this official to decide, after his own personal inquiries in the matter, whether an inquest is necessary. He also in some cases has the selection of the witnesses to be called, and it sometimes happens that a coroner does not know what witnesses are coming before him until they are called. It may be doubtful whether this important part of the work connected with a coroner's inquiry should be entrusted to an official who cannot be expected to possess the requisite qualifications for its proper performance." With reference to medical evidence at, and post-mortem examinations made for, coroners' inquests and procurator-fiscals' inquiries the Committee state: "It would appear that in some cases, owing to the failure of the coroner to take medical evidence, he is not in a position to include in the verdict a statement of the cause of death, even if he desired to do so." A coroner's jury is empowered to order a post-mortem examination of a body if they think it necessary, but usually they are very much guided by the coroner in this matter and are disinclined to take a course which may be opposed to his wishes. Even when it is thought necessary to take evidence from a medical man, he is frequently not allowed to make a post-mortem examination so as to enable him to express a satisfactory opinion as to the cause of death. A medical man is not infrequently asked to view the body and give evidence as to the cause of death if he is able to do so. As to this Mr. HICKS, a coroner, pertinently remarks: "It seems to me rather a useless way of holding an inquest if you just stop short of the only important evidence that you ought to get." Dr. GLAISTER, one of the Glasgow police surgeons, complained of the practice which prevails there of requiring the police surgeons to give the cause of death from a mere inspection of the body. "We frequently give certificates which we know are sheer guesses at the cause of death." After quoting a very interesting case given by Sir CHARLES CAMERON, a member of the Committee, illustrating the great value of post-mortem examinations, the report adds: "The opinion has been expressed that greater freedom should be allowed the coroner in directing post-mortem examinations."[1]

THERE is a growing tendency, with the growth of knowledge, to over-estimate the present and to under-estimate the past. There is so much to learn in keeping fully abreast of modern research in every department of knowledge that the

[1] The complete report of the Committee has now been published and may be obtained from the usual sources, price 8s. 4d.

true value of earlier work is minimised. With a view to determine its real worth each new statement is scanned so eagerly that it is practically comparable to a minute object examined under a microscope, and the outcome is that it is talked about and written about under its magnified appearance until all sense of proportion is in danger of being lost. On the other hand, the undoubted progress made in every branch of science almost inevitably discredits the labours of the earlier investigators, and the modern student is but too apt to look upon their work with his telescope reversed—to see it much smaller than it really is, and even perhaps to reduce it to such small proportions that it appears worthy of disregard. In no branch of science are these natural tendencies more fully shown than in the attitude generally assumed by the pharmacy of the present day towards the pharmacy of the past. Modern chemists and pharmacists must of necessity work whilst it is day and must be well primed with all the latest improvements, and there are many whose interest it is to deluge them daily with laudatory descriptions of the wonderful efficacy of the last new things, which are often new only in name. Granting all that can be said in favour of the present improved methods, of which we shall have to speak later, it is nevertheless only just to maintain an attitude of respectful, if not reverential, consideration towards the past. The older workers were perhaps groping in darkness, but still they were at work. The methods of research may be now very different, but these methods are the result of the gradual evolution of the labours of numbers of past workers. The spirit actuating the past and the present is the same. It is the spirit of inquiry—the desire to attain knowledge, coupled with the earnest hope that by patient labour something may be done towards the alleviation of suffering and the prolongation of life.

Dr. LAUDER BRUNTON'S introductory lecture on Study and Progress in Pharmacy, published in THE LANCET of Oct. 7th, may be regarded as the latest embodiment of the above ideas. His remarks upon study were mainly directed against the baneful system of "cramming" for examinations and the need of marking out definite courses of lectures and laboratory teaching. Dr. LAUDER BRUNTON'S addresses are always interesting and picturesque, and abound in similes which drive home the full force of his meaning to the most careless auditor. His references to the map of the metropolitan district, to the examinations of a Chinaman, and to the specific gravity of acetic acid are not likely to be soon forgotten. Many, however, will still find room for doubting whether an enforced and prolonged curriculum alone will counteract the tendency to "cram." A student who spends a long time in the lecture room and in laboratories may be reasonably expected to have more thorough and practical knowledge, but to a large extent the result must still depend upon the question of individual industry. To be present in the body and absent in mind, under the idea that the evil day of examination is remote, must inevitably lead to "cram" and disaster. The whole secret appears to lie in the steady acquisition of knowledge, which can only be ensured by constant supervision. Turning to the question of progress in pharmacy, as an example to prove that the crude materials once employed must have been very disagreeable both to sight and smell, Dr. LAUDER BRUNTON, in all apparent seriousness, quoted the ingredients of the Witches' cauldron from "Macbeth," and explained that probably the length of the "song and dance" indicated practically nothing more nor less than the measure of time to be spent in boiling. This somewhat prosaic explanation will hardly cover all the supposed magic of the past. Thus, for example, a measure of time alone is insufficient for MERLIN'S "charm of woven paces and of waving hands," which surely means "mesmerism" or nothing. It is, however, entertaining, though perhaps surprising, to find from the lips of a modern therapeutist a seemingly grave defence of some of the ingredients of the cauldron, with sundry scientific proofs of the greater potency of the toad at different times, and a suggestion that from the researches of SACHS and of HORACE BROWN there may perhaps be something more than mere whim or mystery in gathering medicinal plants at midnight. Coming to more recent and less debateable matters, Dr. LAUDER BRUNTON traced our knowledge of morphine and its alkaloidal nature, and he indicated the revolution of ideas likely to arise from the recognition of the formation of alkaloids within the animal body. It is on all hands now conceded that the action of a drug is due to the reaction between the drug itself and the organism; but it requires a certain breadth of prophetic foresight to suggest that in the future, before prescribing any given drug, we should endeavour to ascertain the presence of possibly antagonistic animal alkaloids. These, indeed, are problems for the future to solve, and the amount of work now being done in various research laboratories sufficiently shows that chemists and physiologists are labouring to clear away the mists which still overshadow much of modern therapeutics. The future, however, may safely be left to take care of itself, and may also, we venture to think, be trusted to prove that much is to be learnt by maintaining a respectful and inquiring attitude towards the labours of the past. Progress should always teach humility.

Annotations.

"Ne quid nimis."

COUNTY MAGISTRATES AND THE HOUSING OF THE POOR.

THE reports which are being presented to the Royal Commission on Labour by the assistant commissioners contain much information concerning the condition of the labourers' cottages in rural districts. Mr. Aubrey Spencer, who has visited selected districts in the counties of Dorset, Essex, Kent, Somerset, Surrey, Wilts and Worcester, says that in all these "the homes of the agricultural labourer are not in as good a condition as could be wished." More cottages belong to independent owners in Essex than in any other county visited, yet the worst cottages are to be found there. They are so bad that "no amount of patching and repairing would ever make the bulk of the present cottages satisfactory." Mr. Spencer adds, however, that, "defective as the cottage accommodation is in many places, any prejudicial effects it might be expected to have on the health of the population seem to be in a great measure counteracted by the healthy out-door life led by the agricultural labourer and his family." This is the popular impression, but there can be no doubt that even "agricultural labourers and their families"

cannot reside in small, damp and draughty cottages without suffering in health. The chances of recovery during severe illness must also be diminished where the nursing has to be done under such disadvantageous circumstances. Unfortunately the "popular impression" is one which is shared by too many of our county magistrates and is seriously interfering with the usefulness of the Housing of the Working Classes Act. Recently in Herts, the medical officer of health having represented that certain cottages were unfit for human habitation, the rural sanitary authority applied at the county sessions for a closing order, and although the architect called by the defendant admitted that he had never previously seen such flimsy cottages, the case was dismissed upon the owner promising to make certain repairs. Last week the Maldon rural sanitary authority applied to the Witham justices for closing orders against three cottages described as being made of lath and plaster, in ruinous condition, with exceptionally small rooms, standing in the lowest part of a disused gravel pit, very damp and draughty, &c. From the report in the *Essex Chronicle* we gather that the magistrates hesitated considerably about making an order. "The chief objection of the justices seemed to be that it would be an interference with private property to order the wretched places to be closed." The sanitary officers who gave evidence were also informed that they had better direct their attention to cases of overcrowding, as this was, in the opinion of one of the justices, a tenfold greater evil than that of living in dilapidated cottages. It is somewhat humiliating to a medical officer of health who is honestly endeavouring to do his duty to be lectured in this manner from the bench. We hope that in other districts the justices are not quite so imbued with the doctrine of the sacredness of property and have a somewhat greater regard for the health and comfort of the poor, otherwise the apathy of sanitary authorities and the hostility of magistrates will speedily cause the Housing of the Working Classes Act to become a dead letter so far as such rural districts are concerned.

RAGS AND CHOLERA.

WE publish a letter from Mr. F. J. Burge, L.R.C.P. Lond., of Shanghai, in which he deprecates the removal of restrictions as to the importation of rags under the Dresden Convention. The arguments brought forward by our correspondent are precisely those which originally justified the imposition of restrictions on the importation of rags from countries where cholera was prevalent. It was felt that the suspicion that cholera might be conveyed by means of rags was sufficient to warrant restrictions being placed on their importation in order to protect the public health against an infection which only reached them from abroad. Since then, however, many years have elapsed, and these have been years in which great care has been devoted to the discovery of the causes of disease and the channels by which it is conveyed; and the experience gained during these years on the subject of rags as a means of conveying cholera has been such that not one of the medical delegates assembled at Dresden could give a single instance in which rags, in the form in which they are imported as articles of commerce, have ever been known to serve as a medium of the infection. Indeed, it was stated by authorities such as Professor Koch that the interval of time, occasionally extending over some years, which elapses between the possible infection of the rags by cholera and the date at which they are ultimately exported, together with the processes to which they are subjected during the interval, render it improbable that the infection would be retained even if it had originally been present. Under these circumstances it was felt that restrictions interfering with a large trade were no longer justifiable, and hence the decision to remove all restrictions on the importation of rags as defined in the Dresden Convention, not, it should be added, consisting of articles likely to have been recently soiled by cholera discharges. Another point that influenced the delegates was the knowledge that, whilst persons, other than those actually ill, who came from infected countries were to be freely allowed to pass, it seemed to be unreasonable, on a mere assumption of a possibility as to infection, to refuse to admit rags. Cholera is not as yet known to be communicated by rags of commerce, and this state of our knowledge may well regulate our action with regard to the disease.

A CLUB FOR WORKING GIRLS.

THE club system has been adapted to meet the wants of all sorts and conditions of men and women, and has extended itself to all kinds and corners of cities and towns. Sometimes its effect is useful, sometimes more purely ornamental or epicurean, and sometimes, we must admit, injurious. Happily we may claim for an institution of this kind, lately opened by Sir Charles Russell, in the East end of London, that it belongs—at all events, in its purpose and its probable development—to the first of these classes. It is intended to provide for girls, most of whom are employed in neighbouring factories, besides the companionship of their sex, facilities for learning to sew, cook, nurse, &c.—in fact, whatever may fit them for life in a workman's home. The establishment is conducted on abstinence principles. With Sir Charles Russell we consider this to be a circumstance of good promise. With him, too, we anticipate an excellent result in domestic comfort from the teaching of housewifery, which practically, through one or other implied art, constitutes the official programme of the club's agenda. At the same time we would express a conviction and a hope that the system of club-life will never be generally preferred to that older, mellower fruit of human experience, the family circle, where this exists. No other social bond was ever formed so strong, so wholesome, or so civilising.

HYPNOTISM IN CRIMINAL INVESTIGATION.

IT would appear from the latest particulars of the case of De Jong that the Dutch authorities have abandoned the intention they were at one time stated to entertain of subjecting the accused to the process of hypnotisation, with the view of obtaining evidence from him which might lead to his conviction. It would appear that such a method is permitted by the law of Holland, although, necessarily, information thus obtained cannot be made use of unless otherwise corroborated. The Dutch philosopher, Spinoza, defined the natural state of living creatures to be one in which the big fish had been created to swallow the little fish, and considered society to be an organisation of little fish to protect themselves against the big fish. In such an organisation the Dutch, tutored in the rough school of their struggle for independence against Philip of Spain and his merciless lieutenants—which is still a living memory—appear to have imbibed the idea that everything is permissible in defence of the commonwealth. *Salus populi suprema lex.* With such an argument we are in the fullest sympathy, provided the means used are continuously controlled by that calm reason which is inseparable from the idea of justice. It is well known that certain members of the animal creation, from man to crustaceans, may be hypnotised—that is, have their consciousness placed in a condition which, in the higher animals, and of course most evidently in man, resembles sleep or dream consciousness. Abercrombie relates the case of a young man whose natural sleep was of such a character that he could be made in all things to follow the suggestions of companions who prompted him. The mind revolts from the thought—for which, nevertheless, there is some evidence.—

that it is within the power of one human being so to influence the consciousness of another—so to hypnotise him—as to cause him to perpetrate acts only possible in a condition of moral irresponsibility. Is it more tolerable, we would ask, that a fellow-creature accused of a crime, and who should be assumed until convicted to be innocent, should at such a crisis in his life be rendered irresponsible for his thoughts and actions? It is doubtful, indeed, whether under such circumstances an unwilling subject could be hypnotised; but, granting the success of the experiment and the necessarily inconclusive nature of the evidence, we ask our brother practitioners in Holland whether they consider it calculated to enhance the dignity and independence of the profession of medicine to lend themselves as the agents of an inquisitorial process worthy of the days of Torquemada or of Alva. The intrusion of a period of irresponsibility into a legal process which may end in the forfeit of a life is, to our minds, an invalidation of the investigation and an offence against justice. To countenance, directly or indirectly, such a method we deem unworthy of a calling which is nothing if not rational, beneficent, and impartial.

PHYSICAL EXERCISES.

THE cultivation of physical energy in the youthful members of any community is, without doubt, a matter of very considerable importance, and it is satisfactory to observe that its recognition is becoming more widespread, especially amongst nations situated in temperate climes. Lord Charles Beresford has been expatiating on the advantages attendant upon exercises which serve to develop uniformly the muscles of the body, not for the purpose of producing athletes or gymnasts, but that the human organism may be brought into harmonious and vigorous working order, and under the strict command of the will. Grace in movement and rhythm in action are promoted by such exercises when properly directed and kept within prudential lines. This last point, however, is apt to be lost sight of by enthusiastic devotees of the *turnhalle*, who are sometimes tempted to overlook the primary object of such recreations and to allow them to degenerate into mere exhibitions of ostentatious display. Under such circumstances injury, rather than benefit, is often the result. The committee of the Young Men's Christian Association may be congratulated on the selection they made in asking his lordship to preside at the annual exhibition of gymnastic exercises held last week at the Exeter Hall Gymnasium, Long Acre.

THE EPIDEMIC AT GREENWICH WORKHOUSE.

THE exact nature of the outbreak which has recently occurred at the Greenwich Union Workhouse, and which has attracted so much public attention, seems somewhat difficult to determine. As regards the symptoms, the description given would appear to be not altogether inconsistent with either a modified form of cholera or the effects of ptomaine poisoning; or, failing these, possibly a theory of gastro-enteric influenza might be found to explain the outbreak. The patients, according to the accounts, are suddenly seized with violent cramps, diarrhœa, and vomiting, and in many instances these symptoms have been accompanied by marked collapse. The vomit and motions do not, however, appear to have been of a typically rice-water character; specimens of the motions, as also pieces of the ileum from patients who have died, have been examined by Dr. Klein for the Local Government Board, and although he appears in the first instance to have been extremely suspicious of cholera, and to have found by microscopic examination numerous comma bacilli, he was apparently unable to substantiate his suspicions by subsequent cultivations. Whatever the nature of the disease may be, there seems to be distinct evidence pointing towards its infectious nature, and we are glad to learn that active steps to treat it as such were at once taken, under the advice of the Local Government Board. Up to Wednesday afternoon last there appear to have been considerably over two hundred cases of the disease, and nine deaths, including the case of a patient who died at Lambeth. The incidence of the disease seems to have been greater upon the females than the males, and to have attacked more especially the aged of both sexes. Those who died were all advanced in life, their ages ranging from sixty-four to ninety-two years—in fact, just those whom violent attacks of diarrhœa and vomiting might be expected to exhaust most easily. Curiously enough all the children, some three score in number, have remained well throughout the epidemic; and this point is of considerable interest in connexion with the well upon which suspicion has fallen—namely, that those who drank most of the water have remained quite free of the disease. Up to the present only two of the staff have been attacked—one a nurse in the workhouse and the other in the infirmary, where the cases of illness are being isolated as they occur. It is gratifying to hear, as we go to press, that the epidemic, whatever it may be, is at an end.

CHEMISTS' PRACTICE.

TWO cases are reported in the *Star* of the 10th inst. in which children died who had been treated at the shop of a chemist in Lambeth. One was five months and the other five years old. In both cases the fathers believed the chemist to be a fully qualified man. The first case was seen by two persons who were not even qualified chemists. In both of them the medical statement was to the effect that proper treatment might have saved the patients. In the first case, which was one of sickness and diarrhœa, calomel was prescribed and was considered by Mr. Wood to be an improper medicine. The jury expressed the opinion that death was accelerated by wrong treatment and that the chemist was deserving of censure. In the other case the jury asked the coroner to communicate with the Pharmaceutical Society with reference to the party practising as a chemist without the proper qualification. The harm done by delay in cases prescribed for by chemists is only slightly realised by the public; and if juries would but do their duty in such instances great good would result.

THE RUSSIAN FLEET AT TOULON.

IN view of the present risks to the public health generally it is sincerely to be hoped that the French authorities, before receiving the Russian fleet at Toulon, took all the precautions which the especial dangers of the situation should have suggested. Toulon is one of the most insanitary towns of France. She has frequently suffered from terrible epidemics, and during the course of this year there have been several deaths from cholera there and in the neighbourhood. Though Toulon has only dwellings for about 70,000 inhabitants, the newspaper correspondents estimate the number of visitors and excursionists who went to welcome the Russian fleet at 300,000. Doubtless this figure is somewhat exaggerated. More certain data may be found in the announcement that the railway company has issued over 165,000 tickets for Toulon. In any case, it is only necessary to read the accounts of the fête to see how terribly overcrowded the town has been. Many thousands of persons were compelled to sleep in the open air, in carriages, in small boats, on the bastions of the fortifications &c. Food also was scarce and dear, and many persons have had to content themselves with irregular meals purchased and eaten in the streets. Dust-besmeared sausages and bread constituted the *pièce de résistance* of such meals. Toulon is not a safe town to visit under the best of circumstances, but the gathering of such an immense crowd and the necessary hardships and fatigue endured by homeless visitors must have rendered it

more than usually dangerous. There are scarcely any sewers in Toulon. How was the scavenging managed for this immense collection of people? Well-water of a very unsafe character is still drunk in several districts, and dust is sometimes blown into the reservoir of the town water-supply. Nor is this town water all that could be desired, for in dry weather water taken from a spring nearer to the town, and more likely to be contaminated, is mixed with the smaller but safer supply. Not only has the weather been dry, but the consumption of water must have greatly increased while the town was so overcrowded. We trust that no evil will result from all these circumstances, and that the political excitement of the moment has not occasioned any neglect of the extra and very strict sanitary precautions rendered necessary by the influx of so vast a multitude of visitors. It is fair to Toulon also to add that she appears to have at last realised her insanitary plight. Our Paris correspondent announces an immediately projected reform, and states that, at the instance of Dr. Sambuc, an ex-mayor, it has been decided by the town to adopt the Shone system of drainage.

SMALL-POX AT BRADFORD.

THE recent disastrous destruction of the Scholemoor Small-pox Hospital at Bradford occurred when the town was suffering from an exacerbation of the epidemic, and when, therefore, the hospital in question was full of inmates. Every praise must be accorded to the energy and promptitude with which the unfortunate inmates of the burning ward were removed without any of them being sacrificed in the process; but there has ensued the inevitable sequel to the exposure of so much contagion. This week amongst the first cases arising in the town are noted some of those who were directly concerned in removing the patients from the building and in transferring them to the Leeds-road Hospital. How many of the rest who have been attacked this week came into more or less direct contact with these patients it may not be possible to say; but we cannot avoid the reflection that, if the people of Bradford had listened to the warnings long since addressed to them to seek protection from infection by revaccination, perhaps not one would have suffered from the catastrophe. The sanitary authority appear to be doing all in their power to cope with the new state of affairs, and it is doubly unfortunate that just as they were hoping that they had freed the Leeds-road district from the dangerous proximity to a focus of infection by utilising their new buildings at Scholemoor they should have been compelled by this disaster to revert to the use of the Fever Hospital, which, moreover, is sadly needed for its primary purpose.

THE BALLOONING TRAGEDY IN PIEDMONT.

THE tragic fate that has just befallen the *aérostier* M. Charbonnet illustrates many important difficulties in the management of balloons. He had been but a few hours married when he persuaded his bride to take her honeymoon not on, but above the Alps, and accordingly, with two friends, they started in his balloon the "Stella" at a point not far from Turin. In a few minutes they had soared to 2000 metres—a height at which they encountered some very powerful cross-currents, on which they drifted, now high, now low, in the direction of the Alps. M. Charbonnet became fully alive to the danger, and whilst he encouraged his wife he confided to his comrades that a disaster was inevitable. Meanwhile all but M. Charbonnet himself, who was steering the "Stella" as best he could, were huddled in the bottom of the car, half dead with the cold which beset them from the snow-laden winds through which they were driving. At three in the afternoon the balloon came into violent contact with a peak of the Ciaramella mountain in the Graian Alps; a large hole was made in its side, and the car became wedged in a glacier. Night came on, and their sufferings, half-frozen and without fuel as they were, grew intense. At daybreak, M. Charbonnet crept out of the wreck in which they were bivouacking, and, with a view to devise some mode of extrication from their terrible dilemma, he advanced cautiously about twenty paces, when he suddenly disappeared in a crevasse. His poor wife was nearly out of her mind, but by the aid of her two friends she was helped down the glacier, though slipping at well-nigh every step, till they met a shepherd, who, unheeding their appeals for bread, or guidance, or information, turned a deaf ear to them and went his way. About 2 P.M., when strength and hope were all but expended, they found themselves on the plateau of the Mussa, about 1700 metres above the sea-level, and, coming across some mountaineers, were hospitably entertained by them in a chalet. One of the latter descended to Balme and came back with the syndic, the prætor (the "sheriff," as we should call him), two carabineers, and some peasants, who, having improvised a sedan chair, carried the unfortunate young widow to the Hotel Belvedere, while similar aid was rendered to one of her companions, and the other, less exhausted, accompanied them on foot. Every care was lavished on them in the hotel, and in the meantime six mountaineers started in quest of M. Charbonnet. They found him at the bottom of the crevasse, with a large scalp wound and both legs broken, quite dead. His body was conveyed to the mortuary chapel of San Rocco at Balme, and the survivors, after regaining a little strength, returned to Turin. There is no doubt that M. Charbonnet's over-confidence was carried to foolhardiness, and that the balloon in which he attempted so dangerous a voyage was not sufficiently "controllable" amidst the cross currents of the atmosphere above the Alps. The improvements still in progress in what may be called the "naval architecture of the air" have, it is obvious, to be carried to a far higher degree of perfection before such a voyage can be re-attempted with impunity.

THE SAVAGERY OF FASHION.

NOT a whit too early, but rather too late, has come the protest issued a few days ago by Mr. W. H. Hudson against the indiscriminate killing of birds for the sake of their plumage. Fashion of late has been forgetfully merciful in this matter. Birds for ladies' wear have not commanded a market, and perhaps a few struggling species owe their still recognisable existence to this cause. Unfortunately, there are signs that the grateful period of oversight has expired, for again we hear of a coming "rage" for "wings." In other words, our mothers, wives, and daughters are being persuaded into a return to the old practices of self-decoration, which it appears were only for a time in abeyance. What these implied may be judged from the fact that many species of brightly feathered birds, according to present ornithological records, are already on the verge of extinction. Little wonder is it that this can be said when we reflect upon the heedless barbarity and wanton waste of life which commonly characterise the methods of the bird-killer, his unconcern either for close time or any other season, for the kind or number of his victims (if only he succeeds in making a living by them), and for any form of remonstrance which does not touch his pocket. The appeal to which we have referred was made to women, for whose adornment so many ruthless depredations have been made upon the treasuries of nature. Most of them who have any pretensions either to feeling or intelligence will, we are assured, admit the force of that appeal. It is, indeed, a monstrous thing that has evoked it. Forms of life inimitable in beauty as in adaptation, gems of nature's workmanship, antique, enduring, irrecoverable if lost, are to be wantonly destroyed—why? In order that a dress or a bonnet may for some pleasant hours attract a little social attention. A more

Goth-like ideal of refinement it would be difficult to find. The force of trade interest lately acquired for seals a right to protection. Even the same force, wherever it is instructed by science, and supported by the most rudimentary sense of humanity, demands a similar right for the feathered creation. It is sincerely to be hoped that the purchasing public and our legislators alike will early recognise this right, and will provide against any attempt to infringe it.

THE GRESHAM UNIVERSITY COMMISSION.

THE report of the Gresham University Commissioners is expected to appear in the course of next month, and it is rumoured that the members will soon resume their sittings for its consideration. Mr. Welldon stated at the College of Preceptors that it would probably not be a unanimous report, and this confirms what we have heard on the subject. It will be a great misfortune if the report is not strong enough to ensure the recommendations of the Commission being carried out, for the delay in the establishment of a Teaching University is inflicting the gravest injury on the medical schools of London and all its higher educational institutions.

THE DANGERS OF HYPNOTISM.

IN his opening address to the medical students at the University of Edinburgh last week, Professor Grainger Stewart particularly directed the attention of the students to the following remarks: (1) that the hypnotic conditions of all varieties were practically a diseased state of the nervous system, an artificial neurosis; (2) that hypnotism was undoubtedly able to modify certain morbid processes of the nervous system, particularly those of a functional kind; (3) that in certain conditions results undoubtedly favourable, at least for the time, had been obtained by hypnotic treatment; but (4) that in every case hypnotic treatment involved hazard to the nervous system, that those who were most susceptible to its influence were the most apt to suffer, and that though it might free the patient from one set of symptoms it was apt to make him the victim of many others. Therefore, he recommended the students to employ hypnotism very rarely, to a very moderate extent, and only after careful study of the patient's condition.

THE TREATMENT OF PERFORATIVE PERITONITIS.

THERE has recently been a case under care in London which shows a continued advance in the surgical treatment of peritonitis due to the perforation of an ulcer in the duodenum. These cases are of the most fatal kind, and death rapidly follows the intense peritonitis which supervenes on perforation in this situation. Abdominal section has frequently been performed with the view of arresting this fatal course; but we are not aware of any operation which has been completed by excision of the ulcer and suture of the wound thus made. It is usually very difficult to find the point of perforation, and the surgeon has to be contented with washing out the abdominal cavity and leaving in a drainage-tube, the opening caused by the perforation still permitting of the escape of bowel contents into the peritoneum. A young woman, a domestic servant, was suddenly seized with severe pain in the right hyp chondrium at 7 P.M. on Sept. 21st. Vomiting set in next morning, and she was then treated for intestinal obstruction by repeated enemata &c. Becoming much worse, she was admitted to the Middlesex Hospital under the care of Dr. Cayley, who diagnosed perforative peritonitis. Twenty-six hours after the onset of the illness Mr. Gould opened the abdomen above the pubes, and found the pelvic organs and the vermiform appendix normal and the fluid that escaped from the peritoneal cavity acid in reaction. He therefore made another incision above the umbilicus, and found a small circular perforation in the anterior wall of the first part of the duodenum. This he excised, and closed the opening in the bowel by two rows of silk sutures and an omental flap. There was intense general peritonitis. The peritoneum was washed out with several quarts of warm boric solution and drained by a glass tube in each wound. About two pints of salt solution were injected into the left median cephalic vein. The patient died (from the peritonitis) ten hours after the operation. At the post-mortem examination it was found that the lesion had been entirely excised, that the wound was water-tight, and that no other ulcer was present. There was intense general peritonitis. Had the case been treated immediately after the occurrence of the perforation there is reason to think that a favourable result might have been obtained.

MR. GEORGE SMITH OF COALVILLE.

IN a leaflet on George Smith of Coalville—"The Children's Friend"—Mr. William Connor Sydney gives a short but sympathetic account of the life and labours of that benefactor of neglected child-life in England. The "enthusiasm of humanity" has found no more energetic apostle in our time than the subject of this article. Finding, like many great-hearted men, his inspiration in the condition of his own surroundings—nay, in his own experience as a child—George Smith of Coalville, having acquired a hard-won competency, devoted himself with sympathetic insight and characteristic energy to the solution of one of our most important social problems. "As the twig is bent the tree will grow" is a well-known truth in arboriculture. It is no less true that the influences which surround the human sapling have much to do with the growth of the human organism. Through good and evil report Mr. Smith has untiringly laboured for the amelioration of the infant outcast, and he will leave his name indelibly inscribed upon the beneficent legislation affecting neglected children. By voice and pen, and at the cost of personal exertion and his own means, he has had an important share in placing upon the statute-book enactments affecting the welfare of the children of the brickyards, canal barges, and nomadic gipsies' tents. It need scarcely be added that in his good work Mr. Smith has had to contend with the short-sighted opposition of those whom it has been his most earnest desire to serve, and whom he has succeeded to a great extent in serving in spite of themselves. It is ever thus; the children who build the sepulchres of the prophets are the descendants of those who stoned their benefactor. That George Smith of Coalville may live long to continue his good work must be the desire of all who wish well to their race.

SMALL-POX DIFFUSION AND PROSPECTS.

DURING the past three or four weeks small-pox has given indications that it is by no means a danger that has passed. As was anticipated, during the months of July and August there was a sensible diminution in the amount of the disease and in the area of its distribution, but for several weeks past it has been clear that the infection not only retained its hold on a number of towns, but that in some of them it exhibited a tendency to increase at an earlier date than might have been anticipated. Taking the three weeks ending respectively Sept. 30th, Oct. 7th, and Oct. 14th, we find the following fresh attacks in each of those weeks: London, 18, 18, and 17; West Ham, 7, 6, and 3; Bristol and St. George's district, 8, 3, and 10; Walsall, 53, 45, and 49; Birmingham, 30, 17, and 18; Bradford, 56, 20, and 43; Wakefield, 4, 1, and 2; Middlesbrough, 1, 2, and 1; and Leicester, 4, 0, and 1. Other places attacked during the same period are Hornsey, Wolverhampton, Aston Manor, Derby, Chadderton, Oldham, Liverpool, Halifax, Dewsbury, York, Hull, Tynemouth, Brierley Hill, Quarry Bank, &c. In Bradford an extension

of the disease is believed to have been due to the fire which occurred at the small-pox hospital, with resulting exposure to the infection of persons who assisted in the removal of the sick or who stood by as onlookers. Reviewing all the circumstances we cannot but look with anxiety to the forthcoming winter and spring, more especially in view of the diminution in the amount of vaccination which is in progress and of the failure of the alternative methods of prevention which have been adopted in places notorious for their objection to the compulsory clauses of the Vaccination Acts. In the meantime, it is satisfactory to note that the number of cases under isolation in the ship and land hospitals of the Metropolitan Asylums Board has fallen to 80.

THE DEMAND FOR PAYMENT BY MEDICAL MEN.

THE notion that a medical man is an inhuman monster because he makes payment a condition precedent of his services being given is one of the most curious that ever took possession of the public mind. Nobody thinks of so regarding a butcher or a baker. Gradually the public are being enlightened on the subject. The *Manchester Evening Mail* has some pertinent remarks on a case where a practitioner was so misjudged—viz., censured by a juryman for refusing to send a bottle of medicine without payment. Our contemporary would like to know what was the juryman's calling and whether he conducted his own business on the principle in question.

DR. ALEXANDER KILGOUR.

THE passing of this great Aberdeen physician into the Academic Valhalla deserves something more than the brief notice vouchsafed it in our last issue. His bust standing opposite that of Dr. Matthews Duncan in the graduation hall of Marischal College will have all the eloquence of the most stirring address inspired by the *genius loci*. He typified, even more than his exemplary *vis-à-vis*, the best characteristics of the medical intellect of the north, its caution, its patient pondering of detail, its swiftness to seize the "instantia prærogativa," as Bacon terms it, amid a mass of competing symptoms, its assured boldness in acting on the indication, thus merging, in a word, its mastery in diagnosis and therapeutics. What Sir William Jenner, in his monumental paper on the treatment of typhoid fever, insists upon as the first and last condition of success—namely, "attention to small things"—an injunction, be it remarked, also emphasised by von Moltke in strategy—had long been a principle in practice with Dr. Kilgour. This descended from him to the worthier among his pupils, not a few of whom live to attest the thoroughness of their master's teaching and the clearness of vision it led up to. In his case, as in that of Sydenham, of Baglivi, of Bamberger, and of Charcot, such "experience did attain," as Milton puts it, "to something of prophetic strain" manifesting itself in a prognosis often favourable when, to less enlightened eyes, the omens suggested despondency or even despair. No fitter presence indeed, than that of his "animated bust" could have been placed before the young graduates in their hall—as "being dead" and yet "speaking" inspiringly of dauntless endeavour, and of kindly hope. Sculpture has now supplemented what literature had essayed, and, conjointly with the well-known delineations by Dr. John Brown and his gifted compatriot Mrs. Rodger, will preserve his name for a yet wider professional world than, in his modesty, he ever dreamt of reaching.

TUBERCULOSIS AND ITS PREVENTION.

DR. ANDERSON, the medical officer of health of Dundee, delivered an interesting address on the 14th inst. with the view of quickening public interest on this important topic. After referring to the history of our knowledge of the specific germ and of the manner of its propagation, he mentioned the fact that tuberculosis had been calculated to cause one-seventh of the total mortality of the human race. It was remarkable that, notwithstanding this important fact, little practical interest had been taken in the matter by the State, local authorities, or individuals. An assumed theory of its unavoidable nature seemed to lie at the root of this baneful fatalism. Dr. Anderson maintained that all tubercle bacilli were derived from predecessors of the same character, and pointed out the facility with which this bacillus adhered to moist surfaces and propagated itself under insanitary conditions such as prevailed in the overcrowded houses of the poor. He also mentioned the opinion, held by bacteriologists, that the expired breath of those suffering from the disease was comparatively innocuous, while their sputum swarmed with bacilli, and on evaporation and desiccation was apt to become a fruitful source of infection. Hence the paramount necessity for a systematic destruction of the sputum, disinfection of apartments occupied by those suffering from tuberculosis and disinfection or destruction of articles of clothing likely to retain the germ. Referring to the large mortality from tuberculous disease, Dr. Anderson mentioned, as an instance of public apathy in the matter of its prevention, the fact that very few people applied for disinfection of material after death from this cause in comparison with the numbers of those who took such precautions in the case of the various fevers. Passing to the subject of the disease in cattle, he pointed out the large mortality among these animals from this cause and also the relation of milk-supply to infant mortality from tuberculosis. The proportion of deaths from this cause in children under five years of age in Dundee was found to be 1 in 11. All these facts pointed to the necessity for the householder to safeguard his own interests. Dr. Anderson concluded his instructive address by mentioning in detail the preventive and disinfectant measures necessary to secure the highest possible immunity from the scourge.

DISINFECTION OF PATIENTS DISCHARGED FROM FEVER HOSPITALS.

ALTHOUGH we use the term disinfection, we are far from convinced that it is possible, by any process at present known, to destroy all traces of infection in a patient who has but recently been inhaling an atmosphere presumably charged with infective particles. That much may be done in the way of minimising risk by the liberal use of warm baths &c. all will admit; but in spite of this there must, we fear, still remain a not inconsiderable danger of a discharged patient conveying the disease for which he was isolated back to his home. It is an established, and indeed admitted, fact that secondary cases do not unfrequently occur in houses to which fever convalescents have but recently returned, and it is impossible to deny that they are often connected in some way or other with the patient's return. The question, however, arises as to whether the infection was conveyed on the person or the clothes of the patient, or whether it arose from the unpacking at home of some imperfectly disinfected article of clothing in preparation for the patient's return. It would not be difficult to give instances of cases having their origin in each of these ways. In connexion with this matter it is interesting to see from Dr. Philip Boobbyer's annual report for Nottingham that at the fever hospital there it is the practice to send out with each discharged patient a printed card, urging upon the friends the desirability of maintaining a modified isolation for at least a fortnight after discharge. In a considerable number of fever hospitals oral warnings are, we believe, given; but the provision of a printed card is certainly a better way of bringing the matter home to the parents and of relieving the medical officer of unnecessary responsibility in the matter. The provision of convalescent hospitals for

patients convalescing from scarlet fever is no doubt calculated to diminish the risks we are discussing, but even when this provision is made cases such as those referred to do sometimes occur, and it is obviously safer to still practise some such useful precaution as that related by Dr. Boobbyer.

CURES FOR INEBRIETY.

IT will be interesting to our readers to learn that the action for libel brought by Dr. Leslie E. Keeley, of "gold cure" notoriety, against the Editors of THE LANCET has been discontinued by him and that he will have to pay the taxed costs of the action.

THE ENTRIES FOR THE SESSION 1893-94.

AT the medical schools of the metropolis the enrolment of students for the session is now nearly completed. Through the kindness of the Deans of the respective schools we are enabled to signify approximately the entries. We contrast the figures with those of the previous year:—

	Entries. 1892-93.	New entries. 1893-94.
St. Bartholomew's	156	150*
King's College	119	95
St. Mary's	164	105
Middlesex	69	92
Westminster	36	19
Guy's	238	191
St. George's	27	—
St. Thomas's	94	96
Charing-cross	58	85
London	157	121
School of Medicine for Women	41	—
Dental Hospital	45	—
Cambridge University	132	—
Mason College	94	91
University College (Bristol)	36	30

* Exclusive of special students.

The Scotch and Irish returns have not yet been made, as the classes only assemble this week.

CENTENARY OF THE DEATH OF JOHN HUNTER.

MONDAY LAST, the 16th inst., was the hundredth anniversary of the sad event of the death of John Hunter, which took place in the board-room of St. George's Hospital, and robbed the world of one of its greatest men. We need not relate the particulars of his death; they must be familiar to every English student. Rather do we prefer to recall the active, earnest, and fruitful labours of a life which was spent in the service of science and nature. In celebration of the centenary a conversazione was given by the Hunterian Society at the London Institution, Finsbury-circus, on Wednesday, the 18th inst. Several articles of furniture which once belonged to the eminent surgeon were lent by the Royal College of Surgeons of England and other present possessors. Many portraits of Hunter, his family, his contemporaries, and his pupils were exhibited. A valuable collection of Roman relics, consisting of bronze surgical and other instruments belonging to the corporation of the City of London were on view by the kind permission of the Lord Mayor. Much interest was taken in a hornet's nest, an egg and leg-bone of the extinct moa, and other curiosities, kindly lent by Mr. S. W. Silver. A collection of burglar's implements, photographs of seals on the Pribylov Islands, entomological specimens, microscopical sections showing protozoa, instruments and apparatus were exhibited upon several tables in the very capacious library of the institution. The Statue Scene from "A Winter's Tale" and other scenes were admirably recited by Miss Mabel Harrison and Miss Pauline Barrett. An excellent musical programme was given in the library by the City of London Police Band, and in the theatre by the Moray Minstrels and an orchestra of forty performers under the guidance of Dr. Dundas Grant. Professor Parker, of the Guildhall School of Music, presided at the piano. The President, Mr. F. Gordon Brown, held a reception at 8.30 P.M. The guests numbered about 800.

ST. LUKE'S DAY AT THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

THERE was a goodly gathering in the library of the Royal College of Physicians on Wednesday last to hear the Harveian orator, Dr. Pye-Smith, deliver the annual address established by Harvey himself, to be delivered annually in commemoration of the benefactors of the College, and which since his day has been worthily used to call to mind the life and labours of the illustrious founder of the function. Our readers will be able to judge of the admirable manner in which the orator performed his task. In particular we trust that his exhortations to the medical profession of to-day in the spirit of Harvey will be taken to heart, for they were true, lofty and inspiring. At the close of the address, the President (Sir Andrew Clark) made the presentation of the Baly Medal to Professor Schiff of Geneva, who unfortunately was unable to be present to receive it. It has been announced that the Harveian dinner, which generally takes place on this occasion, will be held in the summer.

THE vestry of St. George's, Southwark, at a meeting held three weeks ago, referred to the public health committee the consideration of a report by their medical officer of health in which, in view of the extension of small-pox and the occurrence of a case of cholera in the district, he advocated the appointment of two additional sanitary inspectors, and, with the approval of the central board, that they should be placed, together with the two present inspectors, under the provisions of Section 24 (2 C) of the Local Government Act, 1888. At a meeting on Tuesday last this suggestion, after having been fully discussed by the aforesaid committee, was adopted by the vestry, and information of the decision was forwarded to the Local Government Board.

WE learn that a series of meetings, under the auspices of the General Practitioners' Association, will be held during the winter at different parts of the metropolis for the purpose of discussing matters of special interest to medical practitioners. The first of the series is to be held at Exeter Hall on Nov. 7th, at 4 P.M., under the presidency of Dr. F. H. Alderson, who will open a discussion upon "The Remuneration of Medical Men." The discussion of the subject will not be confined to members of the Association, but will be open to all medical gentlemen who may be present.

WE are glad to record that Dr. Joseph Ewart, at the unanimous request of the town council of Brighton, has consented to occupy the civic chair of that town for another twelvemonth. The banquet to his worship, on the occasion of his entering upon his third term of office, will take place on Nov. 9th next.

MR. HUTCHINSON will attend at the Clinical Museum, Great Portland-street, for the purposes of clinical conference and lecture on the afternoons of Tuesday, Oct. 24th, 31st, Nov. 7th, 14th, 21st, and 28th, from 4 to 6 P.M. Members of the profession will be admitted on presentation of their visiting cards.

A SWIMMING entertainment and life-saving display, under the auspices of the City of London Swimming Association, will be held in the presence of the Lord Mayor and Corporation at Aldgate Baths, Goulston-street, on Monday, Oct. 23rd, in aid of the Hospital Saturday Fund.

IN an Imperial Edict dated July 2nd, 1893 (Kuang Hsü 19th year, 5th month, 19th day), Civil Rank of the Fifth Class was conferred on Mr. J. H. Lowry, L.R.C.P., L.R.C.S.Edin., Chinese Imperial Customs Service, at present stationed at Wênchow, China.

THE annual dinner of the past and present students of Charing-cross Hospital will be held at the Holborn Restaurant (Royal Venetian Chamber) to-day (Friday, Oct. 20th). The chair will be occupied by Surgeon-Captain Leahy, F.R.C.S.

THE Irish Medical Schools' and Graduates' Association dinner will be held at the Café Monico, Piccadilly Circus, London, at 7 P.M. on Wednesday, Oct. 25th.

MR. EVENOR CHASTELLIER, M.D., has been appointed by Her Majesty a member of the Council of Government of the Colony of Mauritius.

THE opening lecture of the Sunday Lecture Society on the 22nd inst. will be given by Sir James Crichton-Browne, F.R.S., on "Brain Rest."

SIR WILLIAM ROBERTS leaves this week for India to serve on the Royal Commission on Opium. He is expected to return in March.

CHOLERA.

CURRENT NOTES, COMMENTS AND CRITICISM.

IN chronicling the events of the past week as to the progress of the present epidemic we may say, generally, that notwithstanding the present mild and moist weather is favourable rather than otherwise to cholera, the disease, though still prevalent, is declining abroad and in this country. The features which have characterised it from the first continue to characterise it at the present time, and they are very noteworthy. During the past two years we have frequently called attention to the significance of sporadic cases widely scattered at considerable distances from one another over a district, province, or country, and to the liability of lunatic asylums to outbreaks of choleraic disease, as is the case also in public and municipal institutions, where people live together in community and where the occupation of buildings is of a continuous kind. Indications of this nature are regarded as very significant in India, because they are so frequently the precursors of cholera manifestations on a larger scale subsequently. It is frequently not during the first year of a threatening cholera epidemic that the disease manifests itself in force, but during the second or third year; and many observers consider that the mischief has been done and that the cholera-cause has been disseminated before, and frequently long before, it becomes revitalised and its presence manifested even in isolated cases or circumscribed outbreaks. These outbreaks, they consider, serve to indicate in outline the body of events to follow in due course and are dependent upon the presence or absence of environing conditions and upon the force and strength, as it were, of the epidemic influence. The events which follow, however, do not necessarily occur at those places where the sporadic cases first made their appearance, and the disease does not spread uniformly in a province or district; on the contrary, a number of places escape although in the freest communication with the surrounding country. The observers of these phenomena point to the difference between an epidemic and non-epidemic year, and ask whether the differences are explicable on any theory of personal contagion, direct or indirect. They urge that in certain parts of India, for instance, cholera is present every year, that in others it is not, and that the explanation of an epidemic year in the latter, as distinguished from a non-epidemic one, cannot be attributed to persons distributing infective material either directly or through water in one year and not in another. In 1874, for example, there were 14 deaths from cholera in the Central Provinces of India; in 1876 there were more than 20,000; and if the explanation were applied to neighbouring districts and to India as a whole, it becomes, it is alleged, even more untenable and not worthy to be advanced in the name of science. The fact is that the phenomena of an epidemic belong to another region of knowledge altogether and, so far as our present information carries us, neither comma bacilli, bad water, insanitary conditions, nor any other single cause seems adequate to explain the march of cholera over a country. If it be granted that the disease can be reproduced by the transfer of these micro-organisms from a cholera case to a healthy subject, this still fails to explain the phenomena and history of cholera epidemics. Small-pox can be transferred by inoculation, but this fact does not account for the phenomena of recurring epidemics of small-pox. No one would deny on that account, however, the vast importance of the knowledge we have acquired as to the inoculability of small-pox. In 1892 we alluded to the different ways in which a highly contagious disease like typhus fever comports itself as compared with cholera. The point is of sufficient interest to be referred to again. If we take the fatal cases of typhus fever in the gaol population of India we find these gradually rising to a maximum during the third and fourth months and declining on the fifth month; whereas in the gaols of Lower Bengal and the Behars from 1859 to 1867 cholera fatality reached its maximum during the first week, declined to one half during the second, to one-sixth during the third, and had almost terminated altogether during the fourth week. As a broad fact, too, it has been observed that the crews of ships, if drawn from separate sources and shipped immediately before sailing, usually share no community of attack, cholera being confined to those shipped from a definite quarter; and parallel with this is the fact that an outbreak of cholera among troops coming from India in a troopship has occasionally occurred only among, and been limited to, those troops who came from a given station or district, the disease not having extended to any others on shipboard.

With regard to Koch's discovery and views it must be confessed that there are still difficulties in the way. The comma bacillus theory, according to some, proves too much and too little. On the one hand, it has to account for an isolated case occurring in a community in which no subsequent cases occur. Considering that the micro-organism in question is a specialised one and that it develops to such an enormous extent in the human intestine and dejecta, it is not easy to account for its presence in the first instance, or for its limited sphere of influence and action in the second. On the other hand, with the remarkable facilities which exist for its spread through the medium of water, food, and clothing in certain localities, as in some cities and villages in India and elsewhere, it is suprising that outbreaks are not of far more frequent occurrence than they are. It requires to be definitely cleared up, too, whether the bacillus is the invariable concomitant of Asiatic cholera and of no other disease whatever, or whether it is only the concomitant of a morbid process, or a condition commonly present in cholera and but rarely met with in any other disease. Not long ago we published the results of some bacteriological investigations into a fatal outbreak of disease on board the ship *Crofton Hall* due to some ptomaine from decomposed meat. The cases roughly resembled those of cholera, but were perfectly distinguishable from that disease in the opinion of the medical staff of the Calcutta hospital, and yet in one of the cases comma bacilli were found which, according to the *Indian Medical Gazette*, answered to all

the tests laid down by Koch himself. And what are we to understand by bacteriological results which are "indistinguishable" from those of cholera? If indistinguishable, are the cases which furnished them cases of cholera, or are they not?

Amid much that may still seem doubtful and to stand in need of further evidence there is one thing regarding which all are agreed—viz., the importance of a good wholesome water-supply protected from all sources of contamination. Whether the contamination that gives rise to cholera be specific in kind—the comma bacillus—as most authorities hold at the present time, or whether the fouling of water by sewage and surface impurities of any kind be a source of grave danger in times of cholera does not practically affect the result—viz., that a pure, uncontaminated water-supply is the best safeguard we can have against outbreaks or epidemics of cholera.

The cholera returns from St. Petersburg show a general diminution in the prevalence of the epidemic. In St. Petersburg itself, from the 9th to the 12th inst., there were 89 cases and 42 deaths; and in Moscow, from the 6th to the 10th, 9 cases and 5 deaths. The following figures are for the week ending the 7th inst.: City of Warsaw, 7 cases and 3 deaths; city of Dorpat, 11 cases and 5 deaths; Bessarabia, 25 cases and 12 deaths; Lomsha, 381 cases and 190 deaths; Minsk, 39 cases and 17 deaths; Plozk, 2 fresh cases and 4 deaths; and Smolensk, 16 cases and 9 deaths.

In the Government of Warsaw during the week ending the 30th ult. there were 14 cases and 7 deaths.

From Sofia we learn that cholera has reappeared at Tutrakan, on the Bulgarian side of the Danube, a little above Silistria. One death is reported.

Intelligence from Berlin and from Stettin show that cholera is prevailing at the latter place. There were 8 fresh cases and 5 deaths in the city reported on the 14th inst. The holding of the annual fair and other public gatherings have been prohibited. Professor Koch and Dr. Pfeiffer have gone thither to inspect and confer with the authorities. A few cases are also reported at Grabow. The Imperial Health Office at Berlin announced on the 16th inst. that 13 fresh cases and 6 deaths had been reported from various parts of the German empire.

From Budapest we learn that a few cases still continue to make their appearance. Three fresh cases and 4 deaths occurred on the 13th inst. The deaths average 2 or 3 a day.

Cholera has nearly disappeared in Holland; 2 cases and 1 death in one day were recently reported from Amsterdam as having occurred in the whole of Holland; the latest telegram of the 18th inst. reports 3 cases and 2 deaths in Holland in twenty-four hours.

The reports from Rome show that the disease still prevails at Palermo, Pattimarina, and Leghorn. From 20 to 23 fresh cases and 12 deaths at Palermo, 3 cases and 1 death at Pattimarina, and 47 cases and 9 deaths at Leghorn occurred in twenty-four hours. Later reports show that the epidemic is decreasing.

Telegrams from Madrid show that cholera still prevails in the town of Bilbao and in the province of Biscay. The disease, which was increasing at Bilbao at the beginning of the week (there were 62 fresh cases and 24 deaths for the three days ending 13th inst.), is now decreasing. The disease is also decidedly declining in the province of Biscay.

CHOLERA AT GRIMSBY.

(FROM OUR SPECIAL CORRESPONDENT.)

Jerry Building.—The Wells of Grimsby.—The Subsoil Question.—The Need of Sanitary Inspection.

A PROLONGED stay in Grimsby only strengthens the impression which recent events have conveyed that there is something radically wrong in the town. At first sight it is difficult to see what there is amiss. As already described, most of the houses have ample air space both back and front, and though the sewers have an insufficient fall and are tide-locked the drains are not laid under the houses; they are in the back yards. If anything goes wrong the nuisance or the escape of sewer gases occurs in the open air and not within the dwellings. The box closet is a nasty contrivance, but here, again, the nuisance is in the open air and not within the walls of the dwelling. Why, then, are there cholera and so much diarrhœa and typhoid fever at Grimsby? The cholera, we have seen, still lingers in the town. There were five cases and two deaths between the 6th and 9th of this month and other cases followed. But what, at least for the moment, is more serious is the endemic and at present the epidemic prevalence of typhoid fever. Then there is also a great deal of ill-defined gastric fever, which a local practitioner described as "a first cousin to typhoid fever." Probably all these are due to the same causes; but what are those causes? At a recent meeting of the Grimsby town council Mr. Spring attributed the prevalence of typhoid fever to the large amount of "jerry-built property, to sinks untrapped, stinking back yards and filthy places, and down-spouts which were useless and let the rain into the rooms." It is an undoubted fact that there is a great deal of jerry-built property at Grimsby. I have seen many houses, though recently built, falling out of line, their walls bulging or cracking, and this would not happen to new buildings if they were properly constructed; nor can it be believed that the drains of such houses are any better than the walls. Then the gullies are being constantly blocked; they overflow and the slops sink into the soil of the back yards. This is especially dangerous where there are shallow wells close at hand. When I first arrived at Grimsby I was assured that there were hardly any wells in the town. I regret to say that I have seen a considerable number of them, notably in streets where there have been several cases of cholera, though I cannot say that there is any connexion between the wells and that disease. In one street most of the cases of cholera have occurred precisely in that part where there are no wells and where the town water is laid on. On the other hand, cholera was most prevalent in the poorest and the most overcrowded part of the street, which consists of a series of rows of cottages, where, most exceptionally for Grimsby, there is very little space behind. During one of my investigations I found ten houses which were supplied with water from a very shallow well. Two large drain-pipes, one placed on the top of the other, constituted the well. The water was about four feet from the surface of the earth and about four feet deep. At the bottom of the water I could see gallipots and various kinds of refuse. Immediately opposite, in a straight line from the well and not more than four feet away, was a leaking box closet. The box leaked so badly that there was a pool of urine on the floor of the closet. No water is ever thrown into these closets. Some of the urine was also flowing in the direction of the shallow well. The more I see the more I feel convinced of the nuisance and the danger of these box closets. Not only do they leak, not only do the dust and ashes within them escape and enter the neighbouring kitchens after they have been in contact with the dejecta inside the box, as has been already described, but some of these boxes are placed against the washhouse walls, close to the boiler fire, and their contents, thus heated, give off in an accentuated degree the foul odours engendered.

Whilst searching for houses where well water is drunk I found that, since the cholera scare, several of them had been supplied with the town water. Thus, in one house where there was a pump in the back kitchen just over the sink the town water-supply had been laid on in the yard within a fortnight of my visit. The occupant of the house explained that the pump sometimes only yielded two or three bucketsful of what she conceived to be bad water, some neighbouring houses were in an equally bad condition; now, however, they have the town water. This is a good result achieved, only it would have been safer, whilst bringing the water from the main, to have suppressed the wells altogether. Not far from the same spot is a row of five houses with one narrow back court; here there are five box closets, and in the middle of the row of closets there is one pump and a slop sink by its side. The yard is paved with round flint stones that allow the dirty water which is spilt to sink in the subsoil, and it would be important to ascertain how far the well is efficiently protected from infiltration of surface water. In this terrace there were two cases of diarrhœa at the time of my visit, and the inhabitants

complained that the water from the well was very thick after rain. On another occasion, in a court where there had been several cases of choleraic diarrhœa, I found three wells. The inhabitants drank the water from these wells, but a young woman, who was not a native of Grimsby and was there only on a visit, told me that she could not drink the well water because it had a peculiar taste. In some districts where well water alone was available most of the inhabitants whom I questioned said they would prefer the town water. One person insisted that the well water was bad and sometimes as "yellow as ochre" and the people had to let it settle before they could venture to drink it. This particular supply came from a considerable depth and I was at a loss to understand how it could be in such a turbid condition. If, however, through any defective structure of the pumps the water becomes mixed with surface water this would not be surprising, for round the pumps there were slops and all kinds of dirt stagnating on the ground. The back yards of the houses were not level, the pavement in many instances was missing or broken, and this was notably so in one of the houses where there had been a case of cholera. Within a few feet from the pumps stood the box closets. As many as twenty houses were supplied by one pump, and close to it the door for the removal of the box of a closet was broken, and fish-bones and ashes from the box were on the ground by the pump, while there was also stagnant slop water. On entering one of the houses a respectable-looking woman told me that she had lived there for two years and had been ailing all the time. The water, she thought, was bad, for it was often turbid, and she had to go from pump to pump in order to find which was the clearest. The worst, however, was the terrible stench that rose up through the floor of the house during the night. They all slept upstairs, but in the morning, when her husband went down to the ground-floor room, he encountered such a disgusting smell that he was obliged to quickly throw open the doors and windows. It is a current saying that Grimsby is built on fish heads, and certainly there is much to indicate that there is something radically wrong with the subsoil. Perhaps this is only due to defective drainage, and may therefore be rectified; or perhaps there has been carelessness in allowing houses to be built on ground rendered level by discharging unsuitable refuse in hollow places. Credible witnesses, old inhabitants, and others assured me that this was the case in several instances, and that even night-soil from the box closets had been discharged where houses now stand. This is an old grievance, not special to Grimsby. Near London there are many instances where very unsuitable and foul rubbish has been used to fill up hollows so as to make the ground level with projected new streets. This may explain the chronic unhealthiness of localities or groups of houses which cannot otherwise be accounted for. However, and even if the subsoil originally was all that could be desired, the drainage is so defective as to sufficiently account for its contamination. This is a fact which the local authorities do not attempt to conceal. It was only the other day that the "cesspool committee" appointed by the town council sent in its report. There is not, I believe, in all Grimsby a single cesspool; but for some unaccountable reason the inhabitants of Grimsby will persist in calling gullies or dip-traps cesspools. Thus the committee's report states that there are about 8000 cesspools in Grimsby; but a cesspool is a large underground pit or chamber, which receives all the drainage from the closets, which should be carefully closed, cemented, and emptied at least once a year. The cesspools of Grimsby have no connexion whatever with the closets—they simply serve the purpose of gullies in the back yards. They are called cesspools instead of gullies because they are built of bricks and have a larger capacity than the ordinary stoneware gully. Some of them can hold as much as sixty gallons of water. The committee are rightly of opinion that these brick cesspools or gullies ought to be replaced by properly constructed gullies. In support of this opinion they stated that the majority of cases of typhoid fever had occurred where brick cesspools or gullies existed. Undoubtedly this brickwork is most unsuitable, it retains heavy deposits, and facilitates overflow and the contamination of the surrounding soil. In many places I have seen these gullies blocked and overflowing. The inhabitants of one very poor and populous district complained to me that the scavengers came only once in two months to clear out the gullies, and they thought that this should be done at least once a fortnight. Just on this spot, close by some blocked and overflowing gullies, there was a large quantity of fish hung out for smoking and drying.

Most of these grievances are not new. They have been known long ago. Last year when the first alarm in respect to cholera was raised the town councillors themselves went round and visited the greater part of the houses at Grimsby. They sent in their reports, and these contained, I am told, some six hundred recommendations for sanitary improvements to be effected in various houses, &c. Apparently these reports have peacefully slumbered in pigeon-holes. Now the six specially appointed medical men who have been sent to Grimsby to help in attending cases of cholera have in their turn been engaged in a house-to-house visitation. There are, perhaps, about twelve different types of houses in Grimsby; after two or three specimens of each type of house have been seen there is nothing more to be learnt. The house-to-house inspection resolves itself into an inspection of the personal cleanliness of the inhabitants. This will not explain why cholera made its appearance in Grimsby. It is not necessary to visit hundreds of houses, but what is urgently needed is a thorough sanitary inspection of a comparatively small number of typical dwellings. By this I do not mean just a passing visit, but an inspection that may last for several days. The first thing to do is to pull up the boards, thoroughly examine the subsoil, and dig down some depth into the latter. The walls should be tested and examined as to being damp-proof &c. If, in any place, it has been judged necessary to protect houses by a course of cement, care should be taken to see that the cement is there and is of good quality. The drains should be tested in an equally thorough manner. To examine half-a-dozen buildings in this way would do more good than to visit several hundred houses. It is absolutely necessary to see something more than what is visible on the surface. I could give fuller descriptions of the poverty, the dirt, and the insanitary conditions I have seen at Grimsby; but I could find and describe just the same thing in other towns. Yet these other towns would be found to be free from cholera, and, what is more significant, free from the typhoid and "gastric" fevers so prevalent in Grimsby. What, then, is the difference between them and that town? To answer this question one must, I think, look below the surface and dig a little way into the earth.

CHOLERA AT LEGHORN AND IN THE ABRUZZI.

(FROM OUR OWN CORRESPONDENT IN ITALY.)

THE rise in the number and severity of the cholera cases has not, since my last letter, been maintained. Yesterday, in the twenty-four hours ending at noon, there were but two cases and no deaths. Another sign of improvement in the sanitary situation is the return of the fugitives, of whom from first to last there were upwards of 40,000, or nearly half of the population of Leghorn. Praise, and that in no stinted measure, must be given to the authorities for their efforts in fighting the epidemic. It is not only that they have ungrudgingly spent 300,000 francs (£12,000) in combating it by every means known to medicine, but they have displayed an abnegation of self, an individual heroism, and a patient cheerfulness amidst the panic which have been more than a tonic to the people. All the sanitary institutions, not excluding the Assistenza Pubblica and the fraternity of the Misericordia, have left an imprint of their devotion which will not soon be effaced from the memories of the poor Livornesi. The other day Dr. Alfonso di Vestea, Professor of Hygiene in the University of Pisa, and Dr. Irving C. Rosse, a well-known sanitary authority from Washington, U.S., arrived in the city and made minute inquiries as to the origin, the course, and the character of the epidemic which since the 9th ult. has proved so formidable. They inspected the systems, prophylactic and therapeutic, put in practice in city and hospital; they were shown the methods of disinfection adopted; and at their express desire they were taken over the lazaretto, the civic hospital, the "Asilo di Contumacia," and the bacteriological laboratory. The impression formed from what they learned and noticed was highly favourable to all engaged in the work, and on taking leave Dr. Rosse remarked to his hosts, "Signori, io vi dichiaro che, per la cura del

colera, ho imparato a Livorno qualche cosa" (Gentlemen, I assure you that for the treatment of cholera I have learned something at Leghorn). This, of course, is very gratifying, as far as it goes, but it ought to stimulate the Livornese authorities to maintain the standard they have reached in the presence of the invader, and so to fortify the city, in a sanitary sense, as to make a future visitation, if not impossible, at all events comparatively innocuous.

Passing from the Tuscan seaport to the Abruzzi, I note a general subsidence in the severity of the disease. Aquila, Sulmona, Avvezzano and Cittaducale, the four *circondari* into which the province is divided, are, so to speak, in convalescence, insomuch that a brief retrospect of the cases and the mortality may now be given. In Aquila the villages attacked were 13 in number, the cases were 114 and the deaths 57—the proportion between cases and deaths being 50 per cent. In Sulmona the number of places visited by the disease was 14, the cases 281, and the deaths 157—the proportion of the latter to the former being somewhat larger than obtained in Aquila. In Avvezzano there were 10 villages or hamlets visited, yielding 89 cases and 42 deaths. In Cittaducale the disease obtained no foothold. For the whole Abruzzi, therefore, with its 37 affected spots, there were 484 cases and 256 deaths—figures which give some notion of the progress of the epidemic in a rural population from the second half of August to the close of September.

Oct. 9th.

THE REPORT OF THE COUNCIL OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE report from the Council of the Royal College of Surgeons of England recording the work done by the College in its various departments during the past collegiate year, embracing the period from July 14th, 1892, to July 7th, 1893, has been issued, and will be presented to the meeting of Fellows and Members to be held at the College at 2 P.M. on Thursday, Nov. 2nd. The contents are arranged under twenty heads—viz., Committee of Management, New University for London, Army Medical Examinations, Vaccination, Annual Meeting of Fellows and Members, Lecture Arrangements, Removal of Members, Trading Institutions for Treatment of Disease, the Laboratories on the Embankment, Finance, Jacksonian Prize, Hunterian Oration, Jubilee of Fellowship, Bust of Sir Richard Owen, Elections, Deaths, Museum, Library, and Lectures; and there is an Appendix comprising three additional headings: Returns of the Results of Professional Examinations, Statement of Receipts and Expenditure, and Obituary. The purely administrative and educational proceedings of the council during the past year have been comparatively uneventful and do not call for any lengthened comment. It will be noticed that the committee of management have provided for the establishment of a sinking fund to cover any liabilities which may arise on the termination of the lease of the site of the Examination Hall and Laboratories in 1894, the Colleges having adopted the suggestion of the committee by agreeing to invest £150 per annum for this purpose. A deed has been drawn out by the solicitors, and trustees of the fund have been appointed by the Colleges. At the suggestion of the committee also the conditions under which the Examination Hall and Laboratories have been let have been extended. Hitherto the committee have only been authorised to let the rooms at the Examination Hall to other institutions for examination purposes. A considerable sum has been derived by this means; but the committee suggested that the income of the Colleges might be still further augmented if the limitation were removed, and the council of the Royal College of Surgeons have authorised the committee to let the rooms and theatre for such purposes as they may think fit. A similar course will doubtless be pursued by the Royal College of Physicians. The chief business of the committee has had reference to the curriculum of study and the management of the several examinations, and in this connexion synopses in pharmacology and practical chemistry have been issued, the former being drawn up after conference with the examiners in materia medica and pharmacy, whilst the latter is an alteration of the old synopsis unanimously recommended by the examiners in chemistry

With regard to the Army Medical Examinations, Mr. Campbell-Bannerman, the Secretary of State for War, has not seen his way to accept the offer of the two Colleges to undertake the conduct of the examinations for admission to the Medical Department of the Army on the conditions that (*a*) the examinations should be under the control of a committee consisting of representatives of the War Office and the two Colleges; (*b*) that the examiners should be nominated by the committee and appointed by the two Colleges for a definite period; and (*c*) that every candidate should be examined by two examiners in conjunction. The difficulties which have presented themselves in the way of the proposal have proved to be inseparable, but it has been decided that the examinations shall be conducted by examiners appointed under the former system, with the important differences that they are to be selected from amongst the examiners to the Royal Colleges of Physicians and Surgeons and that the tenure of their appointment shall be limited to four years.

Occasion having arisen for the expression of the opinion of the council on the value of vaccination, a committee was appointed in May to draw up a statement for presentation to the Royal Commission, and this statement will be found to embody the main benefits to individuals and to the community which experience has shown to be derived from the enforcement of compulsory vaccination.

The attention of the council has also been called to the improper use of the name of the College which is sometimes made in cases where Fellows and Members have given testimonials in favour of some article or allowed their names to be advertised in support of unqualified practitioners. Two particularly glaring instances of this practice have occupied the attention of the council during the past year, and on March 9th last the following resolution was adopted by them expressing in general terms their condemnation of the abuse: "That it is degrading to the profession and injurious to the public interest that Fellows or Members of the College should associate themselves with trading institutions for the treatment of disease and allow their names to be advertised in support of the practice of medicine and surgery by persons not legally qualified." The penalty of removal has been inflicted on two Members of the College: on one for issuing advertisements "derogatory to the honour of the College" and "disgraceful to the profession of surgery," and on the other on account of conviction for forgery.

The scientific work at the College has pursued the even tenor of its way. Abstracts of the lectures delivered within its walls will be found in the report, but the council, not being satisfied with the present arrangements or with the standard of the lectures delivered in recent years, considering them to fall short of the standard of former times, referred the subject to the nomination committee that they might take into consideration the question "whether any, and if so what, alterations are desirable in the arrangements for the museum and other lectures." The committee recommended a reduction in the number of lectures under the Hunterian Trust from twenty-four to twelve, a proposal which is under the consideration of the trustees of the Hunterian collection. The nomination of professors and lecturers and the selection of subjects for the several lectures will be in the hands of the nomination committee.

During the past year thirty-six applications have been made for permission to work in the laboratories, and of these thirty were approved by the committee. Many valuable investigations have been carried out, and some important contributions to medical and surgical science have resulted from the researches of the workers in the laboratories. To the additions to the museum it is not necessary here to refer. The library has been enriched by a large collection of Russian dissertations presented by Dr. Theodore Maxwell and accompanied by a printed catalogue. These have been bound in the College collection of "Tracts" and lettered "Maxwell Collection." Mr. T. M. Stone has presented a collection of medical portraits, 502 in number, and a number of engravings of hospitals and asylums. The portraits are accompanied by a large collection of interesting autograph letters and manuscripts, including some valuable ones relating to Hunter, Astley, Cooper, and Clift, and letters of Albinus and Boerhaave. The portraits and manuscripts have been so arranged and stamped that in future they will be known as the "Stone Collection."

The library was open on 275 days during the year, and the number of readers was 12,191.

The Jacksonian Prize for 1892 was awarded to Mr. John Bland Sutton for his essay on Diseases of the Ovaries and

Uterine Appendages, their Pathology, Diagnosis, and Treatment. The subject for 1893 is Hydrophobia and that for 1894 The Diagnosis and the Surgical Treatment of Diseases of the Liver, Gall-bladder, and Biliary Ducts.

The Hunterian Oration was delivered by the then President, Mr. Thomas Bryant, on Feb. 14th, 1893, and the College was honoured on that occasion by the presence of their Royal Highnesses the Prince of Wales and the Duke of York. Special interest attached to the oration, as the present year is the centenary of that in which Hunter died.

The fiftieth anniversary of the institution of the Fellowship—otherwise described as the jubilee of the Fellowship—was celebrated on July 5th and 6th, and the proceedings were fully described in THE LANCET of July 15th. The council unanimously decided that a bust of the late Sir Richard Owen should be executed for the College by Mr. Alfred Gilbert, R.A.

The chief elections during the year have been the following. To the Fellowship: Sir William Turner of Edinburgh, M.R.C.S., 1853, and Dr. Charles Bagge Plowright of King's Lynn, M.R.C.S., 1879. To the Court of Examiners: Sir William Mac Cormac, John Neville Colley, Davies Colley, Frederick Treves, and Rickman John Godlee. To the Council: Nottidge Charles Macnamara, Oliver Pemberton, Henry Morris, and Arthur William Mayo Robson. President; John Whitaker Hulke. Vice-Presidents: Sir William Mac Cormac and N. C. Macnamara.

Thirty-nine Fellows and 248 Members of the College died during the past year. Among the deceased Fellows the following had held important offices at the College: Frederick Le Gros Clerk, Edward Cock, Samuel Armstrong Lane, Sir Richard Owen, Alfred Baker, Septimus William Sibley, and Marcus Beck. The Common Room for Fellows and Members was opened on Dec. 1st, 1892.

This completes the record of the work done by the College in its various departments as set forth in the report, with the exception of the finances, the results of examinations, and the political transactions of the council. The finances were dealt with in a special article which appeared in THE LANCET of Aug. 5th. For the tables setting forth the results of the various examinations we must refer our readers to the report itself, or to the College Calendar, while the question of College politics will receive consideration in an early issue of THE LANCET.

THE NEW ANATOMICAL BUILDINGS AT OXFORD.

THE opening of the new anatomical buildings at Oxford marks a new epoch in the development of the study of natural science, especially in its bearings on psychology, physiology, and medicine in that ancient school of learning. Unlike most departments of the kind, it has been cumbered with no restrictions imposed by teachers of other subjects in the same building. In this respect it resembles the continental institutes, being designed and built solely with the one object in view, and that object the advancement of anatomical study and research. The school is one of which not only Mr. Arthur Thomson but Oxford may well be proud, and we confidently anticipate an even greater increase in the number of students of anatomy than has yet taken place since the advent of the present lecturer. After luncheon had been served to the guests in Exeter College an adjournment was made to the new buildings, where the opening ceremony was performed by the Vice-Chancellor of the University, Dr. Boyd, supported by the guests from Oxford and representative teachers and scientific men from all quarters of the kingdom. Amongst those who had accepted invitations were the following:—

The President of the Royal College of Surgeons, England; the President of the Royal College of Physicians, Edinburgh; the President of the Royal College of Physicians, Ireland; the Senior Proctor, the Junior Proctor, the Dean of Christ Church, the Master of Pembroke, the Principal of Brasenose, the Rector of Exeter, the President of Corpus, the Warden of Merton, the Provost of Queen's, the Provost of Worcester, the Warden of New, the Warden of Keble, the Warden of Wadham, the Rector of Lincoln, the President of Magdalen, the Provost of Oriel, the Principal of St. Edmund's Hall, the Principal of St. Mary's Hall, the Censor of the Unattached Students, the Principal of Mansfield, the Vice-Principal of Jesus, Sir Henry W. Acland, Bart., Sir John Conroy, Bart., Sir W. Markby, Mr. E. Chapman, Rev. C. H. Daniel, Mr. W. W. Fisher, Mr. W. B. Gamlen, Mr. A. Vernon Harcourt, Rev. L. Phelps, Mr. Alfred Robinson, Mr. H. P. Symonds, Mr. A. Winkfield, Mr. W. Tylor, Sir Wm. Broadbent, Bart.; Sir George M. Humphry, Cambridge; Sir William Turner, Edinburgh; the Master of Downing, Cambridge; Professor Clifford Allbutt, Cambridge; Professor W. Anderson, St. Thomas's Hospital; Professor Curnow, King's College, London; Professor Elliot; Professor Michael Foster, Cambridge; Professor Green; Professor Griffith, Leeds; Professor Christopher Heath, University College, London; Professor Howden, Durham; Professor Howes, London; Professor Ray Lankester; Professor A. Macalister, Cambridge; Professor Oliver, Durham; Professor Paterson, Dundee; Professor Pelham; Professor Poulton; Professor Mayo Robson, Leeds; Professor Burdon Sanderson; Professor Thane, University College, London; Dr. T. Acland, St. Thomas's Hospital; Dr. Andrew, St. Bartholomew's Hospital; Dr. F. W. Andrewes, St. Bartholomew's Hospital; Dr. Brooks; Dr. Buzzard, London; Dr. Church, St. Bartholomew's Hospital; Dr. Champneys, St. Bartholomew's Hospital; Dr. Collier; Dr. Dixey; Dr. G. A. Gibson, Edinburgh; Dr. Grey; Dr. Latham, Cambridge; Mr. Mallam, Oxford; Mr. Munro Scott, the London Hospital; Dr. W. Ogle, London; Dr. Payne, St. Thomas's Hospital; Dr. Ruffer, London; Dr. Rolleston, St. George's Hospital; Dr. Savage, Birmingham; Dr. Solomon Smith, London; Dr. Starling, Guy's Hospital; Dr. Schorstein, the London Hospital; Dr. Tuckwell; Dr. Symington, Edinburgh; Dr. Samuel West, St. Bartholomew's Hospital; Dr. J. Williams, University College, London; Dr. Sims Woodhead, London; Mr. Stanley Boyd, Charing-cross Hospital; Mr. Gordon Brodie, Middlesex Hospital; Mr. Bruce Clarke, St. Bartholomew's Hospital; Mr. G. H. Makins, St. Thomas's Hospital; Mr. Henry Morris, Middlesex Hospital; Mr. Mansell Moullin, the London Hospital; Mr. T. H. Openshaw, the London Hospital; Mr. Frederick Treves, the London Hospital; Mr. A. Willett, St. Bartholomew's Hospital; and Mr. W. J. Walsham, St. Bartholomew's Hospital.

Before the formal opening Mr. THOMSON gave the following short history of the rise and progress of his department:

Mr. Vice-Chancellor and Gentlemen,—It has been thought advisable, in view of the large number of strangers present, that some brief reference to the history of this department should be made before calling upon the Vice-Chancellor to declare the present institution open. The period to which I wish to refer you is quite recent. It is not my intention to make other than a passing allusion to the work so ably carried out by Professor Rolleston, or to the untiring efforts of one whom we are so pleased to see with us to-day—Sir Henry Acland, to whom science in Oxford owes so much—but rather to take up the story when Professor Rolleston's lamented death left the Linacre Chair vacant. At that time the duties of the chair involved the delivery of lectures on human and comparative anatomy and physiology, a heavy task for any man even then. It was seen that to continue such a state of things in face of the marvellous advances made in science was absurd; wise counsels prevailed, with the result that physiology was recognised as a subject sufficient to engross the attention of one man, and the endowment of a separate chair resulted in the appointment of my distinguished colleague, Professor Sanderson, in 1883. I shall pass over the history of his department, noting only the fact that to his efforts we owe a physiological laboratory second to none in the country; but the Waynflete Professor, to quote his own words, "from the first considered it undesirable to teach physiology without reference to its application to medicine," and with this object in view he coöperated with the Regius Professor of Medicine to secure provision for tuition in descriptive anatomy and chemistry in its physiological and pharmacological relations. As a result of their united efforts the university in 1885 provided a lectureship in Human Anatomy. I was fortunate enough to be selected to fill the office. I look back now with amusement at my earlier experience—the great problem which I had set myself to solve was whether there was a future for the place. At times things looked black enough, but I never lost hope, and my hopes are justified to-day. Coming, as I did, from one of the largest and best equipped schools in the world, the contrast was somewhat startling to find oneself appointed lecturer on human anatomy with no place to lecture in, and possibly no one to lecture to. It was only the universal kindness I received on all hands that encouraged me; and in this connexion I would mention the name of one whose loss we have now to mourn—

the Master of Balliol. At that time Vice-Chancellor, he often helped me by word and deed in a way for which I shall remain ever grateful. Nor should I omit to mention the name of another, now lost to us—that of Professor Moseley, the Linacre Professor, who did all in his power to assist me in making a beginning. As I have said, there was no provision made for the teacher of human anatomy by the university, and it was owing to the generosity of a few private individuals that what has somewhat facetiously been termed "the anatomical shed" was built; you may see it for yourselves. It is the brick portion of the building which stands in the yard between this and the physiological laboratory. The building was not luxurious, but it was well adapted for the purpose for which it was intended. It consisted of a dissecting room 29 ft. by 21 ft., a lecture room 15 ft. by 10½ ft., and a room which had to shelter myself, my three students, a coal bin, and the "subject." Here work was commenced in earnest, but matters speedily reached a climax when in 1886 I delivered a course of university lectures to a class of twelve in a lecture room measuring 15 ft. by 10½ ft. A representation to the effect that increased accommodation was absolutely necessary met with a hearty response from the curators of the University Chest, who on June 12th, 1886, were authorised to expend a sum not exceeding £500 on the erection and fitting of a temporary building in the yard of the physiological laboratory. The erection of a dissecting room, 40 ft. by 30 ft., built of corrugated iron, with store-rooms, &c., attached, permitted of a rearrangement of the compartments of the existing building, which enabled us to convert the old dissecting room into a lecture theatre providing accommodation for about thirty-five students. Meanwhile grants to the amount of £525 enabled us to equip the department with the necessary apparatus and teaching appliances. Here for the past six years the department has been growing and developing, and a gradual and steady increase in the number of students has enabled it to become self-supporting. Towards the end of 1890 I was requested by the Vice-Chancellor, Dr. Boyd, to furnish him with a statement of the requirements of the department, and the attention of the university authorities was called to the fact that further enlargement was necessary not only to provide for the immediate requirements of the students but also to make provision for possible increase in the future. At the time I forwarded the statement the students working in the department numbered thirty—a marked increase on the class to which I first had the honour to lecture, a class which numbered only three individuals; but subsequent events have justified the appeal, for during the past year the number of students enrolled in one term numbered fifty. The appeal gave rise to much discussion; some approved the construction of additional temporary buildings, while others asserted that the time had now come when buildings of a permanent character should be erected to house a department which had passed out of its experimental stage. The counsels of the latter prevailed, for on June 2nd, 1891, Convocation was asked to grant a sum of £7000 for the erection of a laboratory of human anatomy. By what a large majority that vote was carried is a matter of recent history which augurs well for the future of medicine in Oxford. Gentlemen, I must leave it to you to judge whether the sum has been well expended or not. We are lodged now in a department worthy of the subject as well as of this ancient university. We foretell the future by the past, and from that we have every reason to assume that success is now assured. In conclusion I would express my warmest thanks to Mr. Moore, the architect, who has so conscientiously carried out our most exacting requirements, and also to those many friends whom it would be invidious to name, but whom I am so pleased to see here to-day, and who by their wise counsels and timely help have done so much to contribute to the success of the department.

The Vice-Chancellor, Dr. BOYD, in declaring the department open, and on behalf of the university handing it over to Mr. Thomson's curatorship, spoke of the good beginning that had been made, from a consideration of which it might be predicted that the university would go on with the work. While he rejoiced to see the growth of this department he hoped that it would not be necessary to interfere with existing interests, and that, instead of these being pilfered, public liberality, hitherto not tapped, would flow into this new channel. The department, as they were doubtless aware, had teachers of the highest eminence and turned out pupils of great promise. He wished the department all success, though he must tell them that he was an outsider and wished to remain so.

Sir William Turner then delivered the following address.

Mr. Vice-Chancellor,—At the request of my friend and former pupil and assistant, Mr. Arthur Thomson, I have travelled from Edinburgh to take a part in the opening of the new and admirably arranged building which, through the liberality of the university, has been constructed for the study and teaching of human anatomy in Oxford. Although at no time an undergraduate of this university, my associations with Oxford are not of recent standing. My memory carries me back to the time when your Regius Professor of Medicine, happily present with us to-day, then the Lees Reader in Anatomy, kept the lamp of biological science burning in a small building within the precincts of Christ Church. Trained at St. George's Hospital under Brodie, the personal friend fifty years ago of Richard Owen, and familiar with the great work with which that eminent man was then engaged in extending and cataloguing the magnificent collection gathered together by the genius and untiring energy of John Hunter, after being associated for some months in Edinburgh with the distinguished teacher and philosophical anatomist John Goodsir, who was at that time busy with the organisation of a museum of comparative anatomy for the university in that city, Dr. Acland returned to Oxford and, with several able assistants, formed the collection at Christ Church. In course of time, through the liberality of the Dean and Chapter, this became the nucleus of that greater collection which now adorns your noble museum, the building of which, by providing a home for the objective teaching of the natural and physical sciences, marked the commencement of a new era in the educational life of Oxford. I had also the privilege, when a student of medicine at St. Bartholomew's Hospital, of gaining the friendship of Professor George Rolleston. After his appointment as Lees Reader, and subsequently as Linacre Professor of Anatomy and Physiology, the common nature of our pursuits, and my strong personal regard for him, induced me to pay an almost yearly visit to Oxford during his life, so that I had frequent opportunities of watching the growth of the anatomical collection under his vigorous administration. After his much lamented death the university recognised that the duty of teaching both anatomy and physiology was too great a burden to be borne by one man, even when endowed with the abounding energy and capacity for continuous labour which characterised Professor Rolleston. A chair of Physiology, distinct from that of Anatomy, was founded, Dr. Burdon Sanderson being appointed to it, and a special building was erected and furnished with the necessary appliances for teaching and research. Only a few years after this division the necessity of a still further specialisation in biological teaching impressed itself on the authorities of the university, and a lectureship on Human Anatomy, distinct from the professorship of Comparative Anatomy and Morphology, at that time filled by Professor Moseley and now by Professor Lankester, was instituted. To this lectureship Mr. Arthur Thomson was appointed, and the university has been so satisfied with the result that some two years ago a considerable sum of money was voted for the erection of the building, to open which we are assembled to-day. I have great pleasure in saying that in its arrangements and fittings this new school is admirably adapted to the purpose for which it has been built. I hope that I may not be regarded as presuming too much on your good-nature if I occupy the few minutes which are allotted to me in the ceremony of the day with some remarks on human anatomy and the place which it should take as a branch of university education; and the more so, perhaps, as I believe that I have been engaged for a longer period than any of my contemporaries in the United Kingdom as a teacher of the subject.

In its educational aspects human anatomy may be regarded from two points of view: firstly, as a department of the general science of biology; and, secondly, in its technical applications to the practice of medicine and surgery. As I am now addressing a university audience, it is incumbent on me to give the first place to the consideration of the subject in its scientific bearings; for all who are engaged in university teaching are under a special obligation not merely to treat their respective branches of knowledge as collections of facts, but to educe from them general principles. Something more is to be aimed at than an accumulation, in the memory, of words and phrases and ill-digested details. Each subject of study should be made to act as a mental discipline.

The reasoning powers should be strengthened by so presenting the details of the subject, that the relation which they bear to each other may be recognised, and, by so encouraging reflection and comparison, that a due conception of the sequence of events out of which the facts and phenomena as we see and know them may become evident. How far can the study and teaching of human anatomy be used as aids in this important educational object? Consider for one moment the position of man in the domain of organic nature. He stands as the crown and summit of all organisms. His bodily structure is more highly specialised than that of any animal, and correlated with this high specialisation of structure is a mental organisation which empowers him to feel and move and think to subdue to his wants and purposes other organisms, and in many ways to control the operations of nature. Surely in this ancient university, where the study of the mental processes and powers has been pursued with so much zeal and success, a place and appliances may rightly be found for conducting inquiries into that bodily structure through which the manifestations of those powers are made, and without which they would have no existence. It is a part of the duty of the student of human anatomy to display in the course of his manipulative work the parts, organs, and structures of which the human body is composed. He has to analyse its construction, and in the course of the analysis to note the perfection of the framework and the admirable way in which the parts are fitted together and adapted to carry on the functions which they have to discharge. But in the course of these studies it is not sufficient to examine the human body in its adult or fully formed state; the order of origin of its constituent parts, from their first appearance in the fertilized ovum, should also be attended to. It is in this relation more especially that the study of human anatomy touches and blends at so many points with the wider subject of general morphology. If the leading facts and general principles of embryology and morphology have been mastered a flood of light is thrown upon human structure, and a wider interest is given to it than if no such previous morphological training had been received. In the adult body, alongside of parts and organs which during life are actively engaged in the discharges of important functions, one meets with others to which, even with the exercise of the utmost ingenuity—and much inventiveness has from time to time been employed in attempts to explain them—it is difficult, if not impossible, to assign a function. The question naturally arises, Why are they there? And the study of the adult body alone does not supply the answer. But when the order of its development is inquired into, and a comparison is instituted with the development of other vertebrates, the full signification of these apparently functionless structures can be at once apprehended. They are seen to be the vestiges of parts which in the early stages of development were exercising functions in the human embryo, but are not required in its adult condition, though in some of the lower vertebrates they may remain as active organs throughout life.

Of late years a department of human anatomical study has acquired a prominence greater than was formerly assigned to it. I refer to the branch of knowledge which is sometimes named "physical anthropology," though one might appropriately term it the comparative anatomy of the races of men. It possesses wide scientific interest and is of much educational value. If many of those who have had opportunities of travel and of pursuing geographical discovery had received, before they set out, a training in the methods of observing and of recording the characters displayed by the different races of men, we who have to stay at home, but who delight in reading what our more widely travelled friends have seen, would not find so many discrepant statements as to the colour of the skin and eyes, the form of the features, the character of the hair, and other aspects of the external anatomy of the natives of distant countries. In this place and with this audience I should be wanting in respect to the memory of your late professor, Henry N. Moseley, as a traveller and anthropologist, if I did not exempt him from this criticism. Gifted with great keenness of observation and a wide knowledge of natural history, he was as much at home in the description of the animals which build up the coral reefs of the Pacific Ocean, as in his account of the appearance of the people who inhabit the islands which the coral reefs have formed. In my judgment Oxford is peculiarly adapted to be a centre of anthropological education. Your magnificent libraries, especially the Bodleian and Radcliffe; the Pitt-Rivers collection, which, under the charge of Mr. Balfour, is so admirably illustrative of the evolution of weapons, implements, and numerous other objects of human art and industry—the museum, with its valuable series of human crania and skeletons of different races of men, exemplifying a part of the physical side of the subject, and in the examination and description of which Dr. Rolleston and Mr. Arthur Thomson have done good service; and the residence in your precincts of one of the most accomplished writers on general anthropology—all these provide you with much that is required to develop a great school in this department of knowledge. The time at our disposal does not permit me to dwell at greater length on the relations of human anatomy to morphology and anthropology, but I cannot dismiss this part of the subject without asking, Does it not appeal to a wider circle than to that which has for its special object in life the study of medicine as a profession? To have examined the mechanism of the human frame, to have inquired into the order of development of its constituent parts, to have looked at its structural relations to other vertebrates, to have considered the evidence, based on development and comparative morphology, which has been adduced in support of the proposition that man appeared in this world through a process of evolution from lower animal forms, and to be in a position to estimate from personal observation, and not from hearsay, the value to be attached to that evidence—surely such studies are worthy to be prosecuted as a part of a training in general science; but to the student of medicine the pursuit of human anatomy has a more personal application. He may, and indeed ought to, regard it in its more general scientific relations, but he must also dwell upon it in its bearing on the science and practice of his profession. From this point of view he is required to pay particular attention to the adaptation of structure to function. He has to train himself to regard the human body as something more than a piece of inactive machinery. He may admire the beauty and symmetry of its form, the mechanical construction of the joints by which its constituent parts are fitted together, its highly differentiated muscular apparatus, the ramifications of the vascular system, the complex structure of the nerve centres and sense organs, the mode of distribution of the nerves throughout the body, and the form and structure of the viscera as they present themselves to him in succession in the course of a dissection. But he has also to consider what these things are for, and the parts which they play when the machine is imbued with the breath of life. It is in this relation that human anatomy forms one—and, I would venture to say, the most important—of the feet of the tripod of sciences on which human physiology is based. Without a sound anatomical foundation our physiological conceptions can never attain the precision which is required to provide us with an implement to be safely used in its applications to medicine and surgery.

Closely linked with the pursuit of human anatomy in its bearings on the functions of the organs when in a state of health is its application to the study of disease. The expression "morbid anatomy"—diseased structure—at once proclaims how intimate is the association. To the pathologist, as to the physiologist, a sound knowledge of normal anatomy is essential, so that the changes induced by disease in any organ, as well as the effects not unfrequently produced on surrounding parts and organs, may be recognised and a proper value given to them. In making this reference I do not wish it to be thought that I claim anatomy to be the only basis on which modern pathology, any more than modern physiology, rests. The enormous development in our conceptions of the causes and nature of certain morbid processes to which the discoveries of Pasteur, Lister, and Koch have given rise has extended the range of pathology beyond the study of morbid anatomy, and has rendered necessary the formation of new departments in our universities and colleges for pathological teaching and research. In its association with physiology and patbology, anatomy ranks as one of—and, indeed, the most fundamental of—the three sciences which lie at the root of a scientific training in medicine. Before a student can acquire a knowledge of this subject sufficient to enable him to apply it with success to the work of his profession his studies must to a large extent be practical. He must learn not to depend exclusively for his information on what his teacher tells or shows him, but must display with knife and forceps, and such manipulative skill as he can acquire, the constituent parts of the human frame, until he knows how they are arranged and what their relative position is, the one to the other. But, further, he must employ the microscope, and the various methods now in use

for the determination of minute anatomical structures, so that he may become familiar with the textures which enter into the construction of the human body, and how, by being fitted together, they build up the different organs. By personal work of this kind, not hurriedly pursued or attempted to be acquired by "cram," but extending over a period of time sufficient to allow the multitude of details to slowly but surely penetrate the mind and imprint themselves deeply in the memory, the student provides himself with a body of facts which will be of permanent value. When occasion requires he will be able to call up at will a mental picture of the objects and structures seen in the course of his practical work and utilise with safety and confidence the knowledge which he then acquired. Even in this, the more technical, side of an anatomical training the habit of scientific observation should be encouraged. Facts should be mastered, not as isolated fragments having no bearing on each other, and learned perhaps by rote or remembered by some ingenious system of artificial memory, but as having an organic relationship with each other. It is to the universities that we are more especially to look as the seats of a philosophical and scientific training in medicine and in other professions. In schools which are mainly or even exclusively technical in their methods and practice the scientific or philosophical principles of a subject are apt to be lost sight of in the efforts made by the teacher to impart, and by the student to acquire, such routine knowledge as may be readily utilised for professional purposes; but when subjects of professional study become a constituent part of the educational system of a university they should be based upon a literary and a philosophical or scientific foundation. If this is faithfully carried out the universities will succeed both in raising the standard of professional knowledge throughout the country and in introducing into the several professions men of wide general culture and of more varied attainments than can be looked for when the subjects are taught exclusively in their applications to professional practice.

Mr. Vice-Chancellor, may I express the hope and belief that the new building which has this day been dedicated to the teaching of human anatomy in Oxford will become in the hands of the present and of future teachers an effective addition to the museum and the schools of science clustered around it, and that those who are trained here, should they enter that profession of medicine, to which so many who are present belong, will carry with them a high conception of the purport of that profession and of their duty towards it, so that the bond of union between it and this ancient university, of which Harvey, Radcliffe, and Sydenham were members, may be widened, strengthened, and perpetuated.

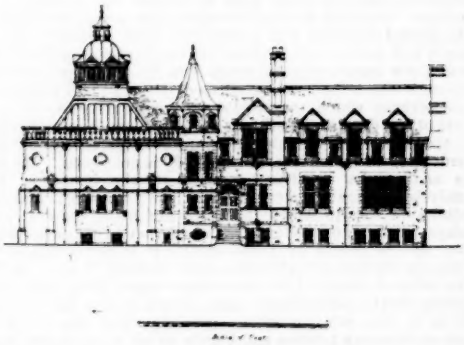
Sir Henry Acland then traced the origin of scientific study to the foundation of the Royal Society. There were periods, he acknowledged, when the interest in science had been overshadowed by religious revivals, but it had never entirely lost its place, even when, as he could remember, he was one teacher in a small laboratory at Christ Church, the sole representative of what to-day was a well-equipped scientific school. In 1854 the present museum was founded, and since that time the development had been continuous, and specialisation of study and teaching had become more and more marked.

Professor A. Macalister of Cambridge thought that the previous speakers had scarcely done justice to Oxford anatomists, and he wished to indicates he honourable place occupied in the history of anatomy by such men as Lower, Willis (the eminent anatomist whose name was still so well kept before students in the anatomical nomenclature of the brain), and Joliffe, who, whilst still a student in Oxford, discovered the lymphatic system, and he was proud to say that they in Cambridge had helped him to substantiate his claim to this discovery. He congratulated the university on the liberality that it had shown in providing funds for the foundation of this new department, and he echoed the hope of the Vice-Chancellor that the liberality of public benefactors would help to maintain the work so well begun.

Professor Burdon Sanderson, in a few well-chosen remarks, referred to the satisfaction that it gave him to see this new building inaugurated. He paid a high compliment to the energy and ability of his colleague Mr. Arthur Thomson, and spoke of the support that he and his colleague had received from the university authorities. He concluded by moving a vote of thanks to the Vice-Chancellor for presiding on what to them was so important an occasion. The proceedings then terminated.

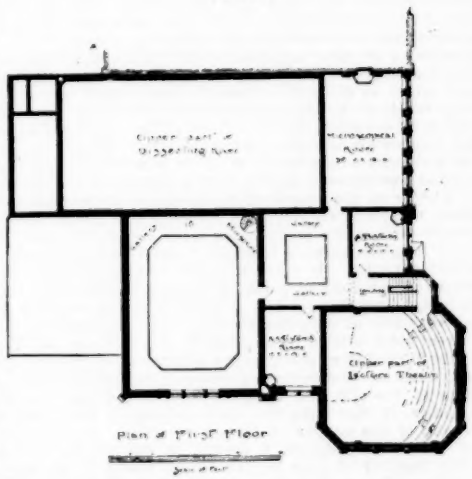
The building, which has been erected at a cost of about £7000, is a good though small example of the Renaissance Gothic style of architecture; it is admirably adapted to the purpose for which it has been designed. It is situated near the new museum, and, together with the Physiological Institute, occupies a site in the corner of the park. Entering the vestibule, 24 ft. 6 in. by 21 ft. 6 in., we find on the left a capital theatre, 30 ft. by 30 ft., in which the pitch of the seats is not too steep, as is usually the case in the newer anatomical lecture-rooms. This is fitted up with every requisite and convenience for demonstration purposes, a roller screen for diagrams a couple of series of sliding blackboards arranged in three, one behind the other,

FIG. 1.



and rising and falling in window sashes, and a prepared surface for projection pictures thrown from an oxyhydrogen lantern in the body of the theatre. The roof window is so screened that it can be readily darkened from the rostrum whenever the lantern is to be used; this theatre will accommodate about 200 students. Behind the theatre, and in communication with it, is the prosector's room, 17 ft. 9 in. by 13 ft. On the right of the vestibule are laboratories and a private room, 13 ft. by 11 ft., in which is a lift shaft communicating with the upper floors. Opening out from this is a private room, 13 ft.

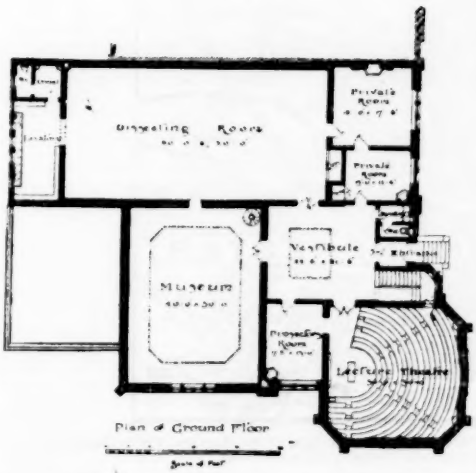
FIG. 2.



by 17 ft. 6 in., which serves as a kind of retiring-room from the large dissecting-room. This large dissecting-room, 60 ft. by 30 ft., opens out from the vestibule and, like the theatre, is fitted with every convenience for the teaching of practical anatomy. The floor is most carefully jointed and is waxed with solid paraffin. The lower part of the wall or "dado" is formed of large slabs of brown and white veined marble which can be simply, rapidly, and thoroughly cleaned. Above this, at a convenient height, blackboard slates are carried all round the room, so that not only demonstrators but students may make diagrams and

sketches of the parts on which they are engaged. When this room is in full working order Mr. Thomson will have one of the most perfect dissecting-rooms in the kingdom. The roof is arranged on the principle of that of a weaving shed; that is, it is broken up into a series of mansard roofs, the straighter slope of each of which is glazed and faces the north, while on the gentler slated slope is an automatic sprinkler, by means of which in hot weather a series of jets distribute cold water at intervals of twelve minutes. The intermittent evaporation thus caused is designed to keep the rooms cool even in the hottest weather. Opening out from the dissecting-room there is a fine museum, 40 ft. by 30 ft., which will be used in the first instance at any rate, especially in connexion with the teaching of practical and scientific anatomy. The dissecting-room, museum, and theatre all extend up to the roof, from which they are lighted, so that ample wall space is obtained for all purposes. On the second storey of the

FIG. 3.



building is a gallery round the vestibule, opening from which on the left are the upper tiers of the theatre; between the theatre and the museum there is an assistants' room, 17 ft. 9 in. by 13 ft., and also the museum gallery. On the right of the vestibule is an assistants' room, 14 ft. by 12 ft., and behind this is a splendidly lighted room, 30 ft. by 18 ft., to be used in connexion with the teaching of microscopic anatomy. It should be mentioned that in the theatre the ventilation is carried on by means of a shaft fitted with an extraction flame. If the ventilation on Saturday last is any criterion of the efficiency of this apparatus when the flame is not in use, those who have to attend lectures may rest assured that the place will be well ventilated, as although the theatre was full for about an hour and a quarter the ventilation was so good that not even the slightest stuffiness was observed. The building is, as already stated, in close proximity to the museum, and the only thing required to make the whole arrangement absolutely perfect is that an entrance should be provided directly into the museum.

THE MANCHESTER SHIP CANAL.

(FROM OUR SPECIAL CORRESPONDENT.)

IT has been announced that the Manchester Ship Canal will be open to traffic at the commencement of next year. The exceptionally dry weather during the whole of the summer has greatly facilitated the work, and the progress has been more rapid than was anticipated. It is impossible to refrain from expressing admiration at the speedy realisation of so vast an undertaking. All concerned in this gigantic work must be congratulated upon its accomplishment. It will redound to the glory and honour of English engineering skill, and to the courage, strength, and endurance of English labour. The "navvies" who have toiled so well and so hard in digging this great trench will, we trust, not be forgotten when the palms and honours are distributed. If their labour was not skilled the danger they incurred was great, and the public but little know how many lives have been lost in cutting the canal. Unfortunately all these congratulations will be somewhat marred by the fact that one of the conditions essential to success has been overlooked. It is a great feat to build a canal, but what is the use of a canal if there is no water? There is, of course, the Irwell; but this is no longer a river. It has become a sewer, and, what is more, a very bad sewer. If the waters of the Irwell are turned into the canal, then the canal will in its turn become a sewer. We may boast of British enterprise for having built the canal; but, as sanitarians, we cannot feel particularly satisfied at the prospect of inviting the ships of the world to sail up what will be little better than a main sewer.

It has been said that the Irwell should not be utilised as a sewer; that it is against the law of the land to pollute rivers; so that theoretically the canal will be pure, because it will take all the waters of the Irwell. There is, however, nothing wider apart than theory, law, and practice. The fact is, the law has not been applied, the theory is not realised, and the Irwell for all practical purposes is and remains a sewer, and sewage—crude, offensive sewage—now fills those portions of the Manchester Ship Canal which are completed. The Irwell, it is perhaps necessary to explain, is that small river of black water which separates the borough of Salford from the city of Manchester. This river winds in and out amidst the thickly populated manufacturing districts of Lancashire for a distance of forty-one miles before reaching the boundary of Salford. As the industries of Lancashire increased, the refuse from mills, factories, quarries, excavations &c. were recklessly thrown into the river. There are persons still living who in their childhood have bathed in this river, but the water is now so black that no one would venture to plunge into it unless he desired to qualify for their part of a negro minstrel. It is characteristic of the condition of the Irwell that when the Achecroff Rowing Club competed at the Southport regatta the captain of their boat "caught a crab." He was so accustomed to the thick waters of the Irwell that at Southport his oar did not meet with sufficient resistance, and thus he accounted for the mishap. The first report of the Rivers' Pollution Commissioners states that the Irwell and its tributaries, direct and indirect, drained a watershed measuring 312 square miles. In 1801 the population of this watershed was equal to an average of 812·6 persons to the square mile, in 1851 there were 2736·5 per square mile, and in 1861 the number was 3254·4, so that the population had quadrupled in sixty years. There are now more than 2,000,000 people in this watershed, and, apart from refuse from manufactories, they contribute about 25,000,000 gallons of sewage daily to fill the Manchester Ship Canal.

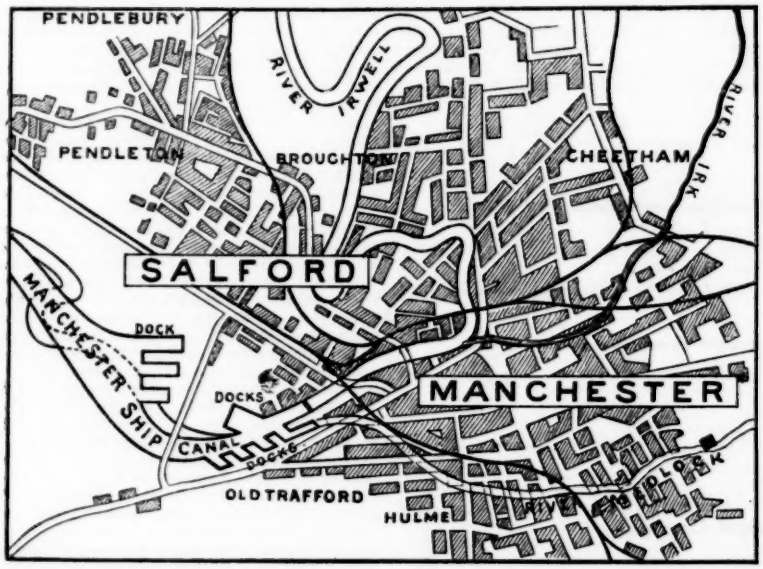
Of course, some efforts have been made to prevent these evils, and here and there notable improvements have been effected. It cannot be said that the pollution is increasing; on the contrary, it is decreasing, as one by one the local authorities concerned are compelled to do their duty, and as individual manufacturers are made to purify their refuse. But there can be no doubt that this work has been needlessly delayed. Even what has been done would never have been accomplished but for the energetic initiative of the Salford town council. In the borough of Salford the Irwell has a course of eleven miles in length. Some portion of Salford is so low-lying that it is directly affected by the condition of the Irwell. Alderman W. H. Bailey, the mayor-elect of Salford, to whom I am indebted for much information and courteous assistance, has termed this district the "lagoons" of Salford. Here floods are of constant occurrence, and when the Irwell overflows it fills the cellars and saturates the walls of the houses with sewage. It will be understood, therefore, why the borough of Salford is especially interested in preventing the pollution of the Irwell; but, apart from the eleven miles of river that pass through the borough and the frequent floods, there is now another reason. By far the largest and most important docks of the Manchester Ship Canal are in the borough of Salford. If the canal, by reason of the foul character of its waters, proves injurious to health, the borough of Salford will suffer more than the city of Manchester. Nevertheless, the borough of Salford was one of the early sinners in respect to the pollution of the Irwell, and the corporation even went out of its way to obtain a special Act of Parliamen

to authorise its evil practices. Section 140 of an Act passed in 1862 gives power to the Salford corporation "to make such sewers as shall be necessary for the effectual drainage of the borough," and "the corporation may also cause such sewers to communicate and empty themselves into any public river or watercourse." But, whilst the corporation thus secured for itself the right of polluting the river, it took measures for preventing private individuals doing the same. Penalties were imposed for throwing cinders, offal, carrion &c. into the river, a Rivers' Conservancy Board was elected, and a river inspector appointed.

Without attempting even a summary of the history of what the Salford corporation has done to prevent pollution of the river it will suffice to say that in 1879 they took the initiative in convoking a meeting of all the local authorities in the watershed of the Irwell. In 1872 the corporation had commenced to build an intercepting main sewer so as to collect and deal with the Salford sewage before discharging it into the river. This sewer was more than six miles in length, in some parts it was necessary to go down to a depth of 50 ft., and it cost more than a quarter of a million of money. All this, however, was of little use if the river on reaching Salford was already polluted. Fortunately the Rivers' Pollution Prevention Act, 1876, in Section 8, Part IV., provides that every sanitary authority shall have power to proceed against any other sanitary authority within or without the district of the first-named sanitary authority. Under this clause the Salford corporation has instituted proceedings against a large number of local authorities. In doing this they have not only sought to protect their own borough from the presence of a foul river, but, as matters now turn out, the purity of the Manchester Ship Canal depends on the success of such action, for the Irwell falls right into the head of the canal. In fact, the ship canal is the Irwell diverted from its winding natural course and made to flow in a straight line between the embankments of the canal. Unfortunately, and in spite of the efforts of the Salford corporation and the Lancashire and Cheshire Joint Committee for the Prevention of the Pollution of the Mersey and the Irwell, this pollution still continues. The law, however, has now been strengthened, and a special Act was passed in 1892 giving the Mersey and Irwell Joint Committee greater powers than those derived from the Rivers' Pollution Prevention Act. It cannot, however, be expected that the evils which have arisen with the growth and development of the cotton trade can be abolished in a couple of years. There are seventy local authorities in the Irwell watershed, and as yet only a few actions have been entered under the new Act. These authorities are called upon to treat their sewage before discharging it into the river. Some of the authorities have taken no notice whatever; whilst others waste years in considering which scheme is the best, and when finally they have selected a scheme they discover some other material obstacle. Thereupon a request is made for further delay, so that a different scheme may be studied and adopted. Thus years roll by. There is much discussion, much futile correspondence, enlivened, perhaps, by occasional legal proceedings; in the meanwhile, the pollution of the river continues as usual. Nothing is done to prevent this abuse.

(To be continued.)

MANCHESTER SHIP CANAL.



Map showing how the River Irwell and its tributaries, the Irk and the Medlock, fall into the head of the Manchester Ship Canal, and also that the larger and more important docks are on the Salford side of the Canal.

ANNUAL REPORT OF THE LUNACY COMMISSIONERS FOR SCOTLAND.

THE Commissioners state that on Jan. 1st, 1893, there were 13,058 insane persons (6060 males and 6998 females) in Scotland of whom they had official cognisance. Of that number 2034 were maintained from private sources, 10,969 by parochial rates, and 55 at the expense of the State. The general results during 1892, as compared with 1891, as regards registered lunatics (inmates of training schools for imbeciles and of the Lunatic Department of Perth Prison forming the non-registered class of lunatics) show that there was a total increase of 256, of whom 61 were private patients and 195 were pauper patients. Of this total increase the increased number in establishments was 182 and in private dwellings 74. Of the former 71 were private patients and 111 were pauper patients. All pauper lunatics in establishments continue to be provided for in institutions of a public character.

The table showing admissions to establishments directly under a sheriff's order, the sanction of the Lunacy Board, or a certificate of emergency discloses the facts (1) that the number of private patients admitted during the last year was 530, being 43 less than during the preceding year and 53 more than the average for the quinquenniad 1885–89; and (2) that the number of pauper patients admitted was 2404, being 51 more than the number during the preceding year and 342 more than the average for the quinquenniad 1885–89.

The whole number of voluntary patients admitted into asylums in 1892 was 73, and it is interesting to observe that the average number admitted for the ten years 1883-92 was 67. The number resident on Jan. 1st, 1893, was 56. The Commissioners define voluntary patients as persons who, with the sanction of the Board, voluntarily enter asylums for the treatment of mental disorder, but whose mental condition is not such as to render it legal to grant certificates of insanity in their case. They are not registered as lunatics, and they cannot be detained for more than three days after giving notice of their intention or desire to leave. The Commissioners go on to say that for some years they have been able to state that nothing has occurred to indicate any difficulty or disadvantage traceable to the presence of this class of patients in asylums; and they continue to be of opinion that it is a useful provision of the law which permits persons who desire to place themselves under care in an asylum to do so in a way which is not attended with troublesome or disagreeable forms.

There were 204 private patients discharged as recovered during 1892, which is 22 below the number for the preceding year, but 18 above the average for the five years 1885–89. The number of pauper patients discharged as recovered was 1112, which is 153 above the number for the preceding year and 183 above the average for the five years 1885–89. The recoveries per cent. of admissions in the different classes of establishments were as follows: In Royal and district asylums, 41; in private asylums, 44; in parochial asylums, 43; and in lunatic wards of poorhouses, 4. As many as 571 patients were discharged as unrecovered; of these 124 were private patients and 447 were pauper patients.

The number of private patients who died in establishments during 1892 was 121, which is 31 less than in 1891 and 20 more than the average of the five years 1885–89. The number of pauper patients who died was 745, which is 31 less than in 1891 and 154 above the average of the five years 1885–89. The percentage of deaths on the number resident was for private patients 7 and for pauper patients 9. The percentage of deaths in the different classes of establishments was as follows: In Royal and district asylums, 9; in private asylums, 7·5; in parochial asylums, 8·4; and in lunatic wards of poorhouses, 6·1.

In the course of the year 1892 106 patients were discharged on statutory probation. Of these 12 were finally discharged as recovered; 8 whose period of probation had expired remained under the care of friends; 17 were returned to asylum; and sixty-nine were still on probation at the close of the year. In this number of probationary removals the cases of patients liberated on trial for periods not exceeding twenty-eight days are not included. Such trials can be made without the sanction of the Board and they are frequently made use of by some superintendents. The statutory removal on probation is not granted by the Board for a period exceeding one year; its special use is to permit of the conditional liberation of patients whose fitness for permanent discharge cannot be determined without trial for a longer period than twenty-eight days. The Commissioners state that the large majority of patients liberated on probation undergo no deterioration, and many are benefited by the change. The system of probationary removal here referred to by the Commissioners was legally authorised in 1862, and from that year to the close of 1892 as many as 3697 patients were so liberated; of that number it appears that only 725 had to be replaced, before the expiration of the period of probation, in the asylums from which they had been removed. The whole number of runaways during 1892 was 176. Of these 93 were brought back within 24 hours, 52 within a week, and 12 after a week; 19 were not brought back during the currency of the sheriff's order or the certificate of emergency on the authority of which they had been detained. Of the 19 patients not brought back 1 was removed from the asylum registers as recovered; 14 were described as relieved; 1 as not improved; and in 3 cases the escape resulted in the patient's death. The number of escapes during 1892 was below the average proportion for the last ten years. The whole number of accidents reported to the Commissioners as having taken place during the year was 114; of these 18 ended fatally. In 9 of them the death was suicidal, 2 took place by hanging, 1 by strangulation with the cord of a window-blind, 1 (a voluntary boarder) by throwing himself through a window, 1 by escape and cutting the throat while at home; 2 by going in front of a passing train (in one of these the patient was on parole; in the other he darted from his attendants on hearing a train approach and leapt a fence separating the grounds from the railway line); and in addition 1 patient who escaped was found killed on a railway line, and another was found drowned. Of the 9 fatal accidents which were not suicidal 2 were due to a fall during an epileptic fit, 4 to asphyxia caused by turning over in bed during a similar fit, and 3 to suffocation by impaction of food in the air passages. There were 6 cases of unsuccessful attempt to commit suicide.

The daily cost of pauper lunatics varies with the mode under which provision for them is made. As regards asylums, the lowest average daily cost per head for a county is 1*s.* 1¾*d.* and the highest 1*s.* 7¼*d.*, which calculated for the year would be £20 19*s.* 4½*d.* and £29 7*s.* 1½*d.* respectively. As regards the licensed wards of poorhouses, the lowest daily cost for a county is 10*d.* and the highest 1*s.* 2½*d.*, or £15 5*s.* and £22 2*s.* 3*d.* per annum respectively. As regards private dwellings the lowest average daily cost for a county is 6¾*d.* and the highest 1*s.* 0¾*d.*, or £10 5*s.* 10½*d.* and £19 8*s.* 10½*d.* per annum respectively.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In thirty-three of the largest English towns 6224 births and 3599 deaths were registered during the week ending Oct. 14th. The annual rate of mortality in these towns, which had been 20·2 and 18·5 per 1000 in the preceding two weeks, further declined to 18·2 last week. In London the rate was 17·9 per 1000, whilst it averaged 18·4 in the thirty-two provincial towns. The lowest rates in these towns were 9·1 in Huddersfied, 10·2 in Derby, 11·4 in Plymouth, 12·9 in Croydon, and 13·6 in Halifax; the highest rates were 21·6 in Wolverhampton, 21·7 in Manchester, 22·7 in Liverpool, 24·6 in Salford, and 25·5 in Preston. The 3599 deaths included 544 which were referred to the principal zymotic diseases, against 760 and 543 in the preceding two weeks; of these, 164 resulted from diarrhœa, 111 from diphtheria, 98 from "fever" (principally enteric), 73 from scarlet fever, 54 from whooping-cough, 35 from measles, and 9 from small-pox. No fatal case of any of these diseases occurred last week in Huddersfield; in the other towns they caused the lowest death-rates in Halifax, Bolton, Croydon, and Oldham; and the highest rates in Gateshead, Wolverhampton, Burnley, Preston, and Sunderland. The greatest mortality from measles occurred in Burnley; from scarlet fever in Leicester, Wolverhampton, and Burnley; from "fever" in Hull, Leeds, Liverpool, Salford, Wolverhampton, Preston, and Sunderland; and from diarrhœa in Manchester, Gateshead, Newcastle-on-Tyne, and Preston. The mortality from whooping-cough showed no marked excess in any of the large towns. The 111 deaths from diphtheria included 86 in London, 4 in Manchester, 4 in Leeds, and 3 in West Ham. Three fatal cases of small-pox were registered in London, 2 in London, 2 in Birmingham, 1 in Liverpool, and 1 in Oldham, but not one in any other of the thirty-three large towns; 84 cases of this disease were under treatment in the Metropolitan Asylum Hospitals and in the Highgate Small-pox Hospital on Saturday last, the 14th inst., against 91, 77 and 79 at the end of the preceding three weeks; 17 new cases were admitted during the week, against 14, 15 and 15 in the preceding three weeks. The number of scarlet fever patients in the Metropolitan Asylum Hospitals and in the London Fever Hospital at the end of the week was 2785, against 2849, 2815 and 2801, on the preceding three Saturdays; 316 new cases were admitted during the week, against 318, 311 and 305 in the preceding three weeks. The deaths referred to diseases of the respiratory organs in London, which had been 231 and 230 in the preceding two weeks, rose again to 235 last week, but were 32 below the corrected average. The causes of 58, or 1·6 per cent., of the deaths in the thirty-three towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Oldham, Bradford, Leeds and in eleven other smaller towns; the largest proportions of uncertified deaths were registered in West Ham, Birmingham, and Preston.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 19·6 and 19·5 per 1000 in the preceding

two weeks, further declined to 18·4 during the week ending Oct. 14th, but was slightly above the mean rate during the same period in the thirty-three large English towns. The rates in the eight Scotch towns ranged from 12·0 in Perth and 12·5 in Leith, to 19·3 in Glasgow and 20·1 in Aberdeen. The 518 deaths in these towns included 18 which were referred to diarrhœa, 12 to diphtheria, 11 to scarlet fever, 11 to whooping-cough, 11 to "fever," 1 to measles, and not one to small-pox. In all, 64 deaths resulted from these principal zymotic diseases, against 107 and 82 in the preceding two weeks. These 64 deaths were equal to an annual rate of 2·3 per 1000, which was 0·4 below the mean rate last week from the same diseases in the thirty-three large English towns. The fatal cases of diarrhœa, which had declined from 31 to 26 in the preceding five weeks, further fell to 18 last week, of which 8 occurred in Glasgow and 4 in Aberdeen. The deaths from scarlet fever, which had been 8 and 5 in the preceding two weeks, rose again to 11 last week, and included 3 in Glasgow and 2 in Paisley. The 11 fatal cases of whooping-cough showed a marked decline from those recorded in recent weeks, and included 8 in Glasgow. The deaths from diphtheria, which had been 19 and 7 in the preceding two weeks, rose again to 12 last week, of which 3 occurred in Glasgow. The deaths referred to different forms of "fever," which had increased from 6 to 17 in the preceding three weeks, declined to 11 last week, and included 5 in Glasgow, 3 in Dundee, and 2 in Paisley. The deaths from diseases of the respiratory organs in these towns, which had been 88 and 105 in the preceding two weeks, declined again to 95 last week, but exceeded by 13 the number in the corresponding week of last year. The causes of 43, or 8·3 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 23·3 per 1000 in each of the preceding two weeks, rose again to 24·5 during the week ending Oct. 14th. During the thirteen weeks of last quarter the death-rate in the city averaged 26·3 per 1000, against 20·5 in London and 18·1 in Edinburgh. The 164 deaths registered in Dublin during the week under notice showed an increase of 8 upon the number in the preceding week, and included 21 which resulted from the principal zymotic diseases, against 24 and 28 in the preceding two weeks; of these, 10 were referred to "fever," 7 to diarrhœa, 3 to whooping-cough, and 1 to measles, but not one either to small-pox, scarlet fever, or diphtheria. These 21 deaths were equal to an annual rate of 3·1 per 1000, the zymotic death-rate during the same period being 2·8 in London and 0·8 in Edinburgh. The deaths referred to different forms of "fever," which had been 6 and 7 in the preceding two weeks, further rose to 10 last week. The fatal cases of diarrhœa, which had declined from 26 to 14 in the preceding four weeks, further fell to 7 last week. The 3 deaths from whooping-cough showed a decline of 3 from the number in the preceding week. The 164 deaths registered in Dublin last week included 29 of infants under one year of age and 34 of persons aged upwards of sixty years; the deaths of infants showed a further decline, while those of elderly persons showed a further increase upon recent weekly numbers. Six inquest cases and 3 deaths from violence were registered; and 56, or rather more than a third, of the deaths occurred in public institutions. The causes of 14, or nearly 9 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

MOVEMENTS IN THE MEDICAL STAFF.

CONSEQUENT upon the dispersion of the Class of Instruction at Aldershot, the following officers have been appointed to the stations specified: Surgeon-Lieutenant Spencer, Woolwich; Surgeon-Lieutenants Goodwin, Fowler, and Porter, North-Eastern District; Surgeon-Lieutenant Keble, North-Western District; Surgeon-Lieutenants Collins and Williams, Western District; Surgeon-Lieutenant Lattey, Eastern District; Surgeon-Lieutenants French and Anderson, Thames District; Surgeon-Lieutenant Smith, South-Eastern District; Surgeon-Lieutenants St. J. B. Killery and Bowter to Ireland; and Surgeon-Lieutenant McMann, Southern District. The following transfers have taken place: Surgeon-Captain Kilkelly, to Aldershot from Portsmouth; Surgeon-Major Crofts, from the North-Eastern District to the Eastern District; and Surgeon-Captain Duncan to Netley. Surgeon-Captain Conor has embarked for India on return from leave. The following officers have rejoined their several stations from leave of absence: Brigade-Surgeon Macfadin, Ayr; Surgeon-Lieutenant Austin, Aldershot; Surgeon-Captain Morris, Southern District; Surgeon-Lieutenant Faichnie, Eastern District; Surgeon-Captain Tatham, Woolwich; Surgeon-Major Beamish, Dublin; and Surgeon-Major Boyd, Dundalk. Surgeon-Captain Faunce, now stationed at Woolwich, has been appointed to the Medical Charge of the Women's and Children's Hospital at Portsmouth.

ARMY MEDICAL STAFF.

Surgeon-Lieutenant-Colonel Robert Mark Bradford retires on retired pay. The following Surgeon-Majors to be Surgeon-Lieutenant-Colonels: Thomas J. Gallwey, M.D., William S. Pratt, M.B., William H. Briggs, William B. Allin, M.B., George T. Langridge, Breame W. Fowler, William E. Webb, M.D., Reginald W. Mapleton, M.B., William L. Gubbins, M.B., Richard G. Thomsett, Peter J. McQuaid, M.D., and James Ring, M.D.

The following order appears in the *London Gazette* of Tuesday, Oct. 17th: "The designations of the Substantive Departmental rank of the officers 'on the Retired List liable to be recalled to service' to be as follows: Brigade-Surgeons, ranking as Lieutenant-Colonels, to be Brigade-Surgeon-Lieutenant-Colonels. Surgeon-Majors, ranking as Lieutenant-Colonels, to be Surgeon-Lieutenant-Colonels. Surgeon-Majors, ranking as Majors, to be Surgeon-Majors. Surgeons, ranking as Captains, to be Surgeon-Captains."

INDIA AND THE INDIAN MEDICAL SERVICES.

The following appointments are announced: 3rd Bengal Cavalry: Surgeon-Captain F. Wyville-Thomson, from 22nd Punjab Infantry, to be Medical Officer. 21st Punjab Infantry: Surgeon-Captain C. H. Bedford, from 13th Bengal Lancers, to Medical Charge of Regiment. 22nd Punjab Infantry: Surgeon-Captain H. B. Luard, to Medical Charge of Regiment. Surgeon-Captain P. W. O'Gorman, Officiating Civil Surgeon of Jessore, to act as Civil Surgeon of Midnapore. Surgeon-Major H. P. Jervis, 7th Bombay Infantry, Raipur, to officiate as Civil Surgeon, Raipur, in addition to his own duties. Surgeon-Captain A. W. T. Buist-Sparks, Officiating Civil Surgeon of Muzaffarpur, to act as a Resident Medical Officer of the Medical College Hospital until further orders. The services of Surgeon-Captain W. J. Buchanan, M.B., B.Ch., I.M.S. (Bengal), are replaced at the disposal of the Military Department. Surgeon-Captain Basu, I.M.S., is transferred from general duty, Bombay, to general duty, Poona. Surgeon-Captain A. W. D. Leahy has been granted an extension of furlough to March 10th, 1894. Surgeon-Captain W. Kelly, A.M.S., has been granted leave to England for six months on medical certificate. Surgeon-Captain C. R. M. Green, Officiating Resident Surgeon, Eden Hospital, is allowed leave for three months.

NAVAL MEDICAL SERVICES.

Fleet-Surgeon Wm. Digby Longfield has been placed on the Retired List, with permission to assume the rank of Deputy-Inspector-General of Hospitals and Fleets. The following appointments are announced: Fleet-Surgeon H. M. Ellis to the *Ramillies*. Surgeons: H. B. Beatty and J. E. Webb, M.B., to the *Ramillies*; W. A. Whiteleggee, B.A., M.D., to the *Sans Pareil*; G. Ley, to the *Volage*; Samuel W. Johnson, to the *Impregnable*; and Percy V. Jackson, to the *Excellent*.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Major J. Menzies, M.D., having resigned his Volunteer appointment, ceases to be an officer of the Army Medical Reserve of Officers.

VOLUNTEER CORPS.

Rifle: 4th (Perthshire) Volunteer Battalion, the Black Watch (Royal Highlanders): Charles Brown, M.D., to be Surgeon-Lieutenant.

SANITARY WORKS AT BENARES.

Many travellers and medical officers who have been to India have paid a visit to Benares—the Hindu city on the sacred Ganges. One of the greatest sanitary improvements effected in India of late was the opening of the new water works at Benares by Sir Auckland Colvin before he retired from office, and this is now to be followed by a complete system of sewerage works for that city. We are glad to learn that native prejudices are rapidly being overcome and

that the excellence of the new water-supply and the facilities which the system affords for obtaining it have impressed the native population. It is only the high-caste Hindu residents on the banks of the river, accustomed to draw their water directly from the Ganges, we are told, who do not care to avail themselves of the new water-supply. The cost of this public work and of the new drainage scheme is very considerable, however, and a source of grave financial difficulty, according to our Indian contemporary, the *Pioneer Mail*, which calls upon wealthy Hindus to show their veneration for the holy city by contributing liberally to a scheme which will secure their sacred river, the Ganges, from pollution. Benares is a large and very interesting native city, but, it must be confessed, a very insanitary one, and it is a matter of surprise that outbreaks of cholera and other diseases are not more severe and frequent than they are. There cannot be a doubt that these public works will lead to a great improvement in the health of the inhabitants.

Surgeon-General Richardson, the retiring Inspector-General of Hospitals for the North-West, was recently entertained at a farewell dinner given by his brother officers at Lucknow. The *Pioneer Mail* says that the Government loses one of its best servants by Surgeon-General Richardson's early retirement, and the Medical Department one of its best friends.

BACTERIOLOGICAL LABORATORY AT NAINI TAL.

The establishment of a bacteriological laboratory near Naini Tal is at present under the consideration of the Financial Department of India, with a view to the provision of the necessary funds.

PROMOTION AFTER HALF-PAY FROM SICKNESS OR DISABILITY.

The *Pioneer Mail* publishes the following decision, which will apply to the Indian Medical Service: "The Secretary of State for War has decided that when an officer, belonging to a corps in which promotion by time service is the rule, has been placed on half-pay for disability contracted in and by the service he should, on restoration to full-pay, reckon towards promotion his time on half-pay, not exceeding one year; but no officer should be promoted whilst remaining on the half-pay list."

Correspondence.

"Audi alteram partem."

"THE PHYSIOLOGICAL EFFECTS OF HIGH FREQUENCY ELECTRIC CURRENTS."

To the Editors of THE LANCET.

SIRS,—Mr. Swinton's letter in THE LANCET of Oct. 14th seems to throw no further light on this subject. The effects on the body are perhaps not altogether proportional to the magnitude of current passed and the density. In the case of the discharge from a Leyden jar we have a comparatively feeble current oscillating many hundreds of thousands of times per second and at a potential of some thousands of volts, and yet such a rapidly alternating current gives rise to energetic physiological effects. Broadly speaking, an alternating current at ordinary frequencies acts chiefly on the nervous system; a continuous one acts more by chemical means, causing electrolytic decomposition of the contained saline fluids. Dr. F. Peterson, in a report of experiments read before the School of Mines, Columbia College, N.Y., on July 30th, 1888, came to the conclusion that rapidity of alternation alone sufficed to make a current more destructive to life, a rapidly alternating current being more deadly than a continuous one of double the voltage. This, we now learn from the recent experiments of M. Nicola Tesla and M. d'Arsonval, holds good up to a certain point only, and magnitude of current as measured in ampères seems to form the prime factor. Contrary to what obtains in the case of metals the carbon filament of a lamp decreases in resistance as the temperature rises with an ordinary continuous or direct current. With an alternating current the resistance, on the contrary, increases until with currents rapidly alternating millions of times per second the effective resistance of the carbon filament is enormously increased.[1] Hence, applying Joule's Law ($H = C^2Rt$) to high frequency currents, the resistance is enormous, while the current is proportionally small; and yet the total energy represented in watts consumed by the lamp is the same as it would be with a current of greater magnitude at a lower pressure. The volts are numbered by thousands while the current is only a few milliampères; but this only proves that so much energy was employed in bringing a lamp filament to incandescence. Is there evidence to show that this energy actually passes through the tissues of the body? With ordinary frequencies the resistance of the human body to an alternating current is less than to a continuous one of the same voltage—just as, in the case of carbon, as soon as the ordinary frequencies are exceeded the resistance offered to the passage of currents rapidly rises. Professor Clerk Maxwell asserted, and Lord Rayleigh later on experimentally confirmed, the fact that with currents of high frequencies transmitted along metallic wires self-induction causes the current to glide over the surface of the conductor without penetrating to the interior at all. What obtains for metallic conductors may be equally true as regards the human body. The late Dr. W. H. Stone, in the Lumleian Lectures, 1886, compared the human body subjected to alternating currents from an induction coil to a condenser, and asserted that with rapid intermissions it was probable that a current did not fully pass before it was neutralised, in whole or in part, by the succeeding current of opposite sign coming from the opposite direction.—I am, Sirs, yours faithfully,

WM. G. SUTHERLAND, M.B. Aberd.

Capheaton, Newcastle-on-Tyne, Oct. 16th, 1893.

[1] Electrician, vol. ii., 1892.

"SCARLET FEVER AND RÖTHELN."

To the Editors of THE LANCET.

SIRS,—As it appears I have not made the points of difference between rötheln and scarlet fever sufficiently plain, allow me to place them side by side so that they may be readily taken in at a glance:—

Scarlet Fever.	*Rötheln.*
1. Patient feels ill.	1. Patient scarcely feels ill at all.
2. Initial fever lasts one week at least.	2. Initial fever lasts three or four days.
3. Period of incubation, as a rule, from twenty-four to seventy-two hours.	3. Period of incubation most commonly about eighteen days.
4. Submaxillary glands, as a rule, enlarged.	4. Glandulæ concatenatæ, as a rule, enlarged, but not the submaxillary.
5. Tongue strawberry-looking, red papillæ showing through the fur.	5. Tongue almost natural.

As a physician remarked to me, the rash and peeling cannot be considered as diagnostic points.

I am, Sirs, yours truly,

Surbiton, Oct. 18th, 1893. F. P. ATKINSON.

IMPORTATION OF RAGS.

To the Editors of THE LANCET.

SIRS,—I am sorry to see by THE LANCET of July 22nd p. 215, the decision arrived at, at the Dresden Conference with regard to the question of restriction on the importation of rags, as likely to lead to further relaxation, for rags, above all things, may be looked upon as the most dangerous carriers of disease germs or poisons. As a resident in the far East for many years, and being well acquainted with the filthy habits of Eastern natives generally (the Japanese always excepted) as well as knowing their utter ignorance and negligence of all sanitary precautions and practices, I can but look upon it as a grave mistake and as a retrograde step. Large quantities of rags are, I believe, exported both from China and India, and it would be difficult to find a more suitable cultivating medium, in which all the essentials of growth are combined with sufficient moisture and the requisite heat provided, than the hold of a vessel travelling through the tropics. Thus, the importation of every conceivable infectious disease, from leprosy and cholera to ringworm, is made an easy matter, and all the money expended on sanitary precautions, improvements, hospitals, &c. is virtually useless whilst this loophole in the first line of defence is left unclosed. Though it has not been proved that cholera has been conveyed by rags, yet the probability is very great that the microbe or poison, be it what it may, can be transported in them, as is known to occur in woolsorter's disease from wool which is simply unwoven rag. When imported these rags have to be sorted for both paper-

making and shoddy before they can be boiled or chemically treated; hence the danger. Restrictions on or refusal to allow the importation of such dangerous goods is a vastly different thing from the quarantine of persons or ships. The former cause a loss to a few temporarily, until arrangements are made abroad for sorting, boiling, or chemically treating and packing the result at the port of export. Even if this pulp cannot be dried and pressed into blocks it could be pumped into the new mineral oil tank steamers so rapidly coming into use and form a return cargo for which they would be seeking, by which means the importation of disease would be avoided and the health of many thousands be saved. The latter, on the other hand, causes widespread inconvenience, detention, and loss to commerce generally. We must trust that Great Britain will still set the example and look upon rags from a sanitary point of view as the most dangerous of cargoes, to be dealt with in the most stringent manner; the loss would be trifling and the benefit great. It is easy to picture in an Eastern country the rags of clothing or bedding, saturated with cholera or other infectious discharges, being pitched into the gutter, and after drying in the sun finding their way into the ragpicker's or scavenger's basket, to be sold to the marine store dealer, and to be packed and landed at home from India or China within two or three months; and, though it may be difficult to trace an outbreak to its source, yet the poison or germs are there all the same and require to be dealt with accordingly. Small-pox and woolsorter's anthrax have already been traced to rags,[1] and doubtless it would not need much more research to find many more infectious diseases arising from the same source.

I am, Sirs, yours truly,

FREDK. J. BURGE, L.R.C.P. Lond.

Shanghai, Sept. 1st, 1893.

"PROFESSOR LIONEL BEALE ON MATERIALISM."

To the Editors of THE LANCET.

SIRS,—I would ask Dr. MacLennan, who writes in support of Dr. Lionel Beale's views on materialism, whether he is advocating the existence of one or two independent principles in the human body. He accepts the view of "the impossibility of deducing life from non-living matter," and also that "consciousness and volition cannot be products of molecular changes in the brain." Are then life and mind the same thing? I apprehend it would not be maintained that all living things have mind. Dr. MacLennan would hold, I take it, that in the case of mole or hydatid pregnancy, where there is active cell growth, life is present, but there is no mind; in the case, however, of a regular birth in the production of a healthy fœtus there is a period when mind is added. It follows from this that in all of us, outside the powers connected with our organisation, there are two others in operation, but in no way dependent upon it; one is life and the other is mind. This seems to be the view held by those who dislike the word "materialism."

I am, Sirs, yours truly,

Oct. 16th, 1893. X.

NORTHERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENT.)

Elswick Works Ambulance Classes.

THE tenth session of the ambulance classes at this great factory was inaugurated last week, when a very large number of students received prizes and medallions. Mr. Clark Newton, the instructing surgeon of the classes, gave an account of their work. It appears that about 800 accidents occur in the works yearly—hence the necessity for first aid.

Model Lodging-houses for Single Women.

The corporation of Newcastle has made an application to borrow a sum of £13,000 for model lodging-houses for the working classes in which single women are to be provided for.

Sunderland Convalescent Home.

In the opinion of a deputation from the Sunderland Convalescent Committee, consisting of the Mayor, Mayoress, &c., who visited the home at Heatherdene, Harrogate, an extension of the building is necessary, and steps will be taken at once to purchase land. The proposed additional wing with its furnishing will cost about £2500.

Sunderland Eye Infirmary.

The Marchioness of Londonderry has recently opened the new building of the Sunderland and North Durham Eye Infirmary. The new institution, which is on the Stockton road, has cost about £7000, and nearly the whole of this sum has been raised. There are fourteen rooms in the basement, and on the second floor there is accommodation for sixteen patients.

Chester-le-Street Water-supply and Typhoid Fever.

At the instance of the sanitary authority, action was taken against the Chester Water Company at the late sessions asking for an order and declaring that the water was injurious to health and conducive to the spread of typhoid fever in the district. A large amount of scientific evidence was given to prove the case, amongst others that of the medical officer of health, who showed that there had been various outbreaks since November last. An outbreak commencing in February last, in his opinion, clearly showed the connexion, and from then till now sixty-five out of seventy-nine patients had used the water, whilst only eight out of ninety patients had used another—the Consett water. After pointing out some sources of pollution and after a careful examination of the water he could come to no other conclusion than that the Chester water was the cause of the outbreak of typhoid fever. Professor Murray of Durham University stated that at the reservoir he found 1376 bacteria to a drachm, whilst in ordinary drinking water there should not be more than 400. At the suggestion of the bench a guarantee was given by the company for the improvement of the water. Typhoid fever seems to prevail in the colliery districts and villages of Durham, especially in the Sunderland district, where at one colliery alone there are now more than twenty cases under treatment. At Morpeth, also, typhoid fever has been prevalent. The medical officer is not satisfied with the water, a good deal of which is pumped from a well in the market place. He asks the town council to supply the town from lower strata which are free from town contaminations. A Local Government inspector has in the meantime taken samples for examination and analysis.

Border News.

The annual meeting of the Jedburgh Nursing Association was held last week, when it was stated that during the past year the nurses had made 2600 visits to patients; after paying all expenses there was a useful balance in the hands of the treasurer.—Dr. Thomas Easton of Stranraer has received the commission of the peace for the county of Wigtonshire.—The death is announced of a well-known border practitioner, Mr. Patrick Kynoch, of Greenlaw, Berwickshire, who had been ailing for some time. The deceased was a prominent Volunteer surgeon, serving with the South of Scotland Brigade, and ranked as Surgeon-Lieutenant-Colonel.

Newcastle-on-Tyne, Oct. 16th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Dr. Johnson Symington's Appointment to Belfast.

DR. SYMINGTON'S appointment to the Chair of Anatomy at Belfast has given much pleasure to his brethren in Edinburgh. Dr. Symington graduated as a Bachelor of Medicine of Edinburgh with first-class honours in 1877, and two years later he became a Fellow of the College of Surgeons of Edinburgh. He took his degree of Doctor of Medicine in 1885 and was awarded a gold medal for his thesis. He has been a recognised extra-mural lecturer on anatomy since 1879; his rooms have been at Minto House, and he has for many years been a formidable rival to the university professor in attracting students to his lecture theatre and dissecting-rooms. Within recent times he has been the most successful of the extra-mural lecturers on anatomy, and the time and labour he bestowed upon his students had a very decided effect in improving the teaching of anatomy generally in Edinburgh and in making the teachers devote more consideration to the needs of the students than had previously been paid to them. While he was one of the most successful of the teachers in the extra-mural school, he did not confine himself to mere teaching, but was constantly engaged on the working out of anatomical subjects either in the region of human or comparative anatomy

[1] Stevenson and Murphy's Hygiene, vol. i., p. 924.

Among his contributions are such works as "The Topographical Anatomy of the Child," an elaborate atlas of beautiful frozen sections; "The Cerebral Commissures in the Marsupialia and Monotremata," "The Viscera of a Female Chimpanzee," and "Certain Physiological Variations in the Shape and Position of the Liver." These indicate the wide range of his work, while the accuracy and quality of it are fully recognised by anatomists. It is, however, not only as a successful teacher that Dr. Symington will be missed; his colleagues in the School lose a genial friend, and nowhere will he be more missed than in the Pathological Club, in the work and discussions of which he took a very active part. He will enter upon the work of his chair on the 31st inst.

Suspected Case of Cholera at Leith.

A seaman who arrived at Leith from Grangemouth a week ago became ill on Saturday with vomiting, purging, and cramp. He applied to the Leith Hospital, and on the officer of public health being called in he was removed to the Cholera Hospital. It appears that the man sailed from a port on the Danube to Hamburg, and that in the course of the voyage cholera broke out and several deaths occurred. He was kept in hospital for some time at Hamburg, but ultimately sailed for Grangemouth. He is reported to be improving, and the case is being further investigated.

The Opening of the Royal Medical Society.

The winter session of this Society is to be opened on Friday of this week by an address from Professor Gairdner of Glasgow.

Infectious Diseases in Glasgow.

The lately issued report of the medical officer of health for the city of Glasgow gives a far from flattering account. As compared with the return of the preceding week a large increase in the number of cases of infectious diseases is shown, an increase amounting to some thirty attacks on the whole. There were 9 cases of typhus fever, of enteric fever 167, of puerperal fever 4, of scarlet fever 572, of diphtheria 28, of whooping-cough 57, and of other diseases of the zymotic group a less considerable number.

The Health of Aberdeen.

Dr. Matthew Hay reports that the total death-rate in Aberdeen during the month of September (17·66 per 1000 per annum) is slightly higher than in the immediately preceding month, when it was 17·27, and is still higher than in September, 1892, when it was 16·36. The mean age of all persons dying during the month was 31·1 years, as against 37·2 in August and 35·8 in September of last year. The increase in the death-rate is due to a higher infant mortality. No cases of cholera were reported in the city, nor did any case arrive on vessels entering the port. Four cases of choleraic diarrhœa, one of which ended fatally, were reported during the month.

Aberdeen University: Opening of the Winter Session.

The various classes in arts, science, and medicine met for the first time this session on Monday last. Inaugural addresses were delivered by most of the professors. There will be a rectorial election next month, Lord Huntly's tenure of office having expired.

Marischal College, Aberdeen.

A commencement has been made with the improvements and additions to Marischal College, several old buildings which lie between Broad-street and the College quadrangle being in process of demolition.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Dublin Water-supply.

IN consequence of the great drought which has prevailed for several months past the contents of the Vartry Reservoir fell so low that on the 16th inst. the canal water was turned on and now supplies a very large portion of Dublin. The canal water is more palatable to drink than that of the Vartry, but it is harder in consequence of the lime it contains. Recently allusion was made to a bacteriological examination of it by Dr. McWeeney, and now I may mention that Professor Emerson Reynolds, University Professor of Chemistry, has reported to the board of Trinity College on some samples of water taken before and after filtration from the fifth lock. He states that the complete absence of ammonia and nitrates from the filtered sample and the small proportions of albuminoid nitrogen, nitrates, and combined chlorine prove that the water is free from substances in process of decomposition and that its organic purity is distinctly higher than the standard for a wholesome supply.

Royal University of Ireland.

A memorial has been presented to the senate, signed by 140 women graduates of the university, praying that the junior fellowships recently instituted may, like all the other prizes and distinctions, be open to women for competition. A second memorial on the same subject has been presented by the Central Association of Irish Schoolmistresses and the Ulster Association of Schoolmistresses. The advertisement for the competition for the junior fellowships merely stated that they would be "open to graduates of two years' standing," but it has not yet been definitely settled that they should be open to women graduates.

Cork Hospital Saturday.

About £360 was the amount received by the collections from the Hospital Saturday movement in Cork this year; but since then donations to the amount of £635 have been received from various firms and companies. By weekly contributions from the *employés* of the City of Cork Steam Packet Company a sum of £95 was contributed to the fund.

Queenstown Water-supply.

After considerable delay the Queenstown Commissioners have adopted the gravitation scheme proposed by Mr. Kirby, their engineer. The water will be obtained from the Leamlara river and is not used for irrigation or other purposes, so that the claims for water rights would be very small. The cost of bringing the water to the reservoir at Carrignafoy, a distance of thirteen miles and a half, including cost of land, pipes, &c., is estimated at £6002, which would give eighteen gallons a head per day, but if thirty gallons a head are to be obtained the cost, including everything, would be £7905.

The Professorships in Queen's College, Belfast

The vacant chairs have been filled up by the appointment of Dr. John W. Byers as Professor of Midwifery and of Diseases of Women and Children, Dr. Johnson Symington as Professor of Anatomy, and Dr. W. H. Thompson as Professor of Physiology.

Health Prosecution.

At the Cookstown Petty Sessions, held on Oct. 13th, the guardians of the Cookstown union, as the local sanitary authorities, summoned Mr. John Auterson and Mr. J. J. Jones for having exposed a girl named Muldoon, who was suffering from small-pox, and also for having entered a public conveyance with her. It appeared that the girl was a servant of Mr. Jones, and when she sickened of small-pox, instead of bringing her into hospital, a carriage was engaged from a local car-owner, and the girl, accompanied by Mr. Auterson and Mr. Jones, who were both inside the vehicle, was driven to her mother's house, some nine miles distant. On their way they stopped at the hotel at Coagh, where Mr. Jones got out, and the proprietor of the hotel, going to the carriage, understood from the medical man that the girl had some infectious disease. From here they drove to the residence of the Catholic curate, where Mr. Auterson got out and saw a patient, telling the landlady that he had a bad small-pox case in his carriage. The curate pointed out the danger they ran, but Mr. Jones said it was only chicken-pox, on which Mr. Auterson told him it was small-pox. It would seem that Mr. Auterson then wanted to go back to Cookstown, but Mr. Jones induced him to go on, and they left the girl with her mother, who lived in a one-roomed house with another woman. The curate at once reported the matter to Mr. Harris, the dispensary practitioner, who had the girl immediately removed to Cookstown Hospital, where the disease developed and whence she has since been discharged. Evidence was given by the Catholic curate (Rev. M. M'Culloch), Dr. Graves, Mr. Harris, the relieving officer, the owner, and the driver of the car. For the defence it was urged on behalf of Mr. Jones that he was not aware that the disease was small-pox until Mr. Auterson said so at the clergyman's, and in corroboration the personal risk incurred by him was pointed out. For Mr. Auterson it was urged that he was acting under Mr. Jones's directions and was not at the time fully responsible. Both defendants were fined £1 5s. and costs on each charge.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Poisoning by Machine Oil.

DR. REBOUL reports a curious instance of wholesale poisoning by machine oil (*huile lourde, vaseline liquide, huile d'armes*). Theoretically this is purified olive oil; in reality it is of mineral origin, consisting usually of the residue of the distillation of petroleum. Its toxic properties were placed *en évidence* by a strange occurrence at the Fort of Bessoncourt (Belfort). Summoned there at 2 P.M., Dr. Reboul found the garrison astir, all the soldiers who had partaken of supper at 6 P.M. on the previous evening having since suffered from headache, nausea, vomiting, griping, and profuse diarrhœa. In the courtyard he met numbers of the men either repairing to or returning from the *cabinets d'aisance*, many of them suffering acutely and having the forehead covered with beads of perspiration. Inquiry pointed unmistakably to *l'huile d'armes* as the cause of these disorders, that substance having been, presumably by mistake, utilised in a salad dressing. All the men recovered.

Gleet and Marriage.

That diseases of the uterus and its appendages owe their existence in a not inconsiderable percentage of cases to contamination from a persistent gleet in the husband is a fact admitted by every observant gynæcologist. A significant example is reported by Dr. Guiard in a recent number of the *Journal de Médecine de Paris*. In March, 1885, that gentleman attended a young man for a trivial discharge which, although it had failed to yield to divers modes of treatment followed for the space of one year, was apparently cured in a fortnight by injections of a solution of silver nitrate. All discharge had ceased, and the first portion of urine passed was free from flakes and filaments. The following July the patient, who had for a year abstained from sexual intercourse, re-presented himself, a slight intermittent discharge having recurred two months after the treatment. Fresh injections brought about another apparent cure. In January, 1886, however, a return of the gleet occurred. The patient asked if he could safely marry six months later. Dr. Guiard very discreetly declined to give an opinion, but took his patient to a consultant, who saw no objection to the union. In June, the persistency of the discharge being a source of great trouble to the patient, he desired to break off his engagement. Again the consultant declared in favour of the marriage, which accordingly took place. Three months later the man brought his wife to Dr. Guiard suffering from a hyper-acute attack of vaginitis. Metritis, salpingitis, and pelvi-peritonitis followed in the order mentioned. The young woman was in consequence bedridden for some years, and in 1891 a miscarriage ended her existence.

Sanitary Improvements at Toulon.

The great naval port of Toulon has for the last few days been the scene of Franco-Russian festivities, and the news of the projected sanitary transformation of that town will come as a pleasant surprise at this juncture. At present Toulon possesses no sewers, the system obtaining there for the disposal of sewage being primitive in the extreme. Every morning at seven o'clock there may be seen in the streets a number of small carts devised to collect and remove the sewage, and called *torpilleurs-Dutasta*—Dutasta being the name of the whilom Mayor of Toulon who invented them. It has now been decided to adopt the Shone System, by which all the sewage, collected in the houses in closed receptacles, will be propelled into the sea at a great depth by means of ejectors worked by compressed air. To Dr. Sambuc, town councillor and ex-mayor, is principally due this progressive instalment. That gentleman had been deputed to study the system in England.

M. Pasteur.

The readers of THE LANCET may recall the account I supplied of the celebration of the seventieth birthday of M. Pasteur at the Sorbonne on Dec. 27th, 1892. Among other addresses presented to the illustrious scientist on that memorable occasion was one from the Municipal Council of Paris. As a further memento of the event, the town council decided to offer M. Pasteur, in the name of Paris, an album, which is said to be a magnificent work of art.

Académie des Sciences.

The election of a member to replace the late Professor Charcot in the medical section of the Académie des Sciences will probably take place on the 30th inst. It is an open secret that the choice of the academicians will fall upon Professor Potain. The professor is an admirable clinician, few being his equal in the *finesses* of auscultation. It is, however, unfortunate that a too unassuming manner and a particularly low tone of voice should militate against his success as a lecturer. He is a great favourite with the younger members of the profession.

Oct. 17th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Inoculations in Typhoid Fever.

DR. E. FRAENKEL[1] reports a number of cases of typhoid fever treated by gluteal injections of cultures of the typhoid bacillus. The virulence of the bacteria was diminished by cultivation in thymus-bouillon. After three days in the warm closet the cultures were sterilised by heating to from 61° to 62° C., and the sterility proved before their employment. The charts and cases are not published in detail, but Dr. Fraenkel is of opinion that the treatment modified and materially shortened the course of the fever, though it did not prevent relapses or accidental complications. The number of cases thus treated was 57.—Professor Rumpf publishes in the same paper 36 cases of typhoid fever treated by gluteal injections of cultures of bacillus pyocyaneus. The course of the cases indicated that the treatment had very much the same effect in modifying and in shortening the fever as was produced by Fraenkel's cultures of the typhoid bacillus.

Serum Injections in Tetanus.

Professor Moritz[2] publishes a case of a boy twelve years old, suffering from tetanus, treated by injection of Behring's serum. The cause of the tetanus could not be ascertained. The case was a fairly severe example of the more chronic form of the disease and ended in recovery.

Wanted in England.

A Bill is under consideration by the Bundsrath which will probably lead to greater stringency of the laws regulating the sale of poisons and patent medicines. A considerable number of the medical profession are in favour of prohibiting the advertising of patent medicines, even when their composition is known. It is further suggested that a general examination of the composition of secret remedies should be officially made and the results published, and that all foreign secret medicines and pharmaceutical specialities should be more highly taxed.

The Imperial budget for the next financial year includes a proposed grant of £15,000 for the purpose of providing a second pathological institute for the University of Berlin. The present accommodation, though good, is not sufficient for the very large number of students.

Professor Virchow will celebrate the fiftieth anniversary of his doctorate at the beginning of this winter semester.

Oct. 16th.

Obituary.

WILLIAM FREER LUCAS, M.R.C.S., L.R.C.P. LOND.,

CASUALTY MEDICAL OFFICER TO THE MIDDLESEX HOSPITAL.

WILLIAM FREER LUCAS was born at Petworth, Sussex, on Aug. 24th, 1870, and had therefore just completed his twenty-third year when, on the 8th inst., he succumbed to diphtheria contracted in the discharge of his duties as acting resident medical officer at the Middlesex Hospital. His early education was received at Churcher's College, Petersfield, and at the Royal Medical Benevolent College, Epsom, which he entered in September, 1883.[3] In boyhood he resolved to enter the medical profession and spared no pains to fit himself for that career. He gained many class prizes at Epsom, as well as the Senior School Scholarship in 1886 and the Anne Hood Exhibition in 1887 as the first-placed amongst the candidates from Epsom College who passed the matriculation

[1] Deutsche Medicinische Wochenschrift, No. 41.
[2] Münchener Medicinische Wochenschrift, No. 39.
[3] 'As Dr. Holman has reminded us in his letter to *The Times*, Epsom College has within a few weeks lost two of its *alumni* from the same disease and under similar circumstances, namely, Mr. A. E. Durham and the subject of this notice.

examination at the University of London. Passing the preliminary scientific (M.B.) examination in July, 1888, he entered the Middlesex Hospital as the Epsom scholar for that year. His work at the hospital amply fulfilled the promise of his school life. In the session 1891–92 he gained the first Broderip Scholarship (the chief clinical prize) and also the Lyell medal for surgery and surgical anatomy. He became house physician, and in July last was appointed to the office of casualty medical officer. He obtained the diplomas of M.R.C.S. and L.R.C.P. in October, 1892, and would have proceeded to the final M.B. at the University of London this year had his life been spared. This record shows that from his earliest days he worked with thoroughness and zeal and had every prospect of a brilliant future when his life was prematurely closed. Nor were his distinctions limited to the academic side of his life; in all manly and athletic pursuits he excelled, being a foremost member of the cricket and football clubs at school and hospital, and being also passionately fond of hunting. Personally William Freer Lucas was frank, amiable and upright; he was deservedly and widely esteemed, so that the friends of his later life can have no difficulty in understanding how one of his charming disposition secured, by the votes of his schoolmates at Epsom, the "Wakley Popularity Prize." We have already chronicled the sad circumstances of his death; it may perhaps be added here that when he realised the nature of his illness he bore the knowledge with heroic patience and fortitude, yet feeling that he could not recover. The funeral, which took place on the 13th inst. at the little church at Shamley Green, Guildford, was attended by several of his hospital friends, and the grave on the Surrey hillside was covered with many handsome floral tokens of the regard in which he was held by the members of the medical and nursing staffs, the resident officers and the students of the hospital to which he had become so much attached.

DR. EVARISTO CHIOSSONE.

THIS able practitioner, who died last week in Genoa, was a real benefactor of his species. Having qualified for every branch of the profession at the Ligurian university, he devoted himself at the Ospedale di Pammatone to orthopædic surgery. From being assistant he rose to be "chirurgus primarius" in that hospital, and thereafter entered the army, in which he became surgeon-major. Another post which he held with usefulness and credit was that of Inspector-General of the "Servizio Celtico" (hospitals for syphilitic diseases) in Liguria. Always ready to assist during epidemic visitations or public casualties, he greatly distinguished himself in the memorable cholera years 1835 and 1884, labouring chiefly amongst the very poor and giving relief, medical and other, out of his own private means in countless deserving cases. He shared largely in the "decorations" and such-like insignia of royal or civic favour open to the profession in Italy; but more than all of these he valued the esteem and respect in which his compatriots, high and humble, continued to hold him, and which will long keep his memory green on the Riviera Levante.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS.—The following gentlemen passed the Second Examination of the Board in the subjects indicated, on Monday, Oct. 9th:—

Anatomy and Physiology.—John Spencer, Francis Charles Collinson, Oliver Smithson, and Robert Stanley Collier, Students of Yorkshire College, Leeds; Charles Adolphe Knowles Renshaw, Owens College, Manchester, Cambridge University and Mr. Cooke's School of Anatomy and Physiology; Frederick Samuel Rowland, Robert Jones Evans, and Henry Winstanley, University College, Liverpool; Wesley Newell, Trinity College and General Hospital, Toronto, Canada; Frank Ashe and Charles Moore, Owens College, Manchester; Henry Baylis, Masons College Birmingham; and Reginald James Rogers, University College, Bristol.

Anatomy only.—William Henry Clough and Charles Henry Dearden, Yorkshire College, Leeds; Frank Herbert Wilkinson, George Abraham Parker, Ernest Hoskin Birchall, Walter Melrose Jackson, University College, Liverpool; David Christopher Mawinney Shaw and Frederick Leonard Sessions, Owens College, Manchester; Alfred Ernest de Vall, Masons College, Birmingham; Thomas Priestley, Firth College, Sheffield; John Douglas Wilson Beavis, University College, Bristol; and Huntley Clark, St. Bartholomew's Hospital.

Physiology only.—William Ewart Maw, Yorkshire College, Leeds; Henry George Sidley Anderson, Samuel Sugden, and John Barton, Owens College, Manchester; George Edward Bowring, Cambridge University and Owens College, Manchester; Edward Athelstan Clarke, University College, Bristol; James Bradley Hughes, University College, Liverpool; Thomas Sansome, Masons College, Birmingham; and Harry Parker Dailey, College of Medicine, Newcastle-on-Tyne. Six candidates were referred in both subjects, five in Anatomy only, and eight in Physiology only.

Passed on Tuesday, Oct. 10th:—

Anatomy and Physiology.—James Henry Robinson Bond, St. Mary's Hospital; Lindsay Weir, Middlesex Hospital and Mr. Cooke's School of Anatomy and Physiology; Edward Shirley Jones and Herbert Augustus Hutt, St. Bartholomew's Hospital; and John Musgrave Aclana, University College.

Anatomy only.—Jonathan Wallace Eales, Firth College, Sheffield; Julio Daniel Eastman, Owens College, Manchester; Frederick Leigh Angior, University College, Liverpool, George Muir Foster and Harry Robert Emms, University College, London; C. Herbert Goldsmith Prance and Herbert John Richards, St. Bartholomew's Hospital; Wilfrid Becher Carter, St. George's Hospital and Mr. Cooke's School of Anatomy and Physiology; John Charles Reynolds Robinson, St. Thomas's Hospital and Mr. Cooke's School of Anatomy and Physiology; Everitt Millais, St. Thomas's Hospital; Glenville St. Clair Van Rooyen, Ceylon Medical School; William Lewis Hughes, Guy's Hospital; and Herbert Edward Goulden, Middlesex Hospital.

Physiology only.—Francis William Joynes and Sydney William May, Owens College, Manchester; Arthur Ernest Hancock, Masons College, Birmingham; Osbert Carden Sibley, Middlesex Hospital and Mr. Cooke's School of Anatomy and Physiology; Edwin Cecil Dare Bascombe and Clement John Baker, Middlesex Hospital; Philip Phillips, Charing-cross Hospital; John Stafford Mellish and Edward Barnard Eames, St. George's Hospital; and Robert George Knox, King's College. Twelve candidates were referred in both subjects, six in Anatomy only, and nine in Physiology only.

Passed on Wednesday, Oct. 11th:—

Anatomy and Physiology.—George Ernest Duncan, Charles William Booker, Arthur William Ormond and William Ernest Hills, Guy's Hospital; Henry Edward Montgomery Baylis, Gustave Ernest Lectézis, Archibald Edward Ireland and John Boyan, St. Bartholomew's Hospital; Silas Ethelbert Dunkin and Arthur Farr, Charing-cross Hospital; Edward Le Gevte, London Hospital; Leonard Bowring Betts, Westminster Hospital; Duncan Cecil George Sinclair, Reginald Olive Sibley and Samuel Henry Facey, St. Mary's Hospital; John Edward Langley, Middlesex Hospital; Hugh Allan McCullough and James Herbert Austin, Trinity College, Toronto, Canada.

Anatomy only.—Edward James Parry and Lionel Jasper Bartlett, St. George's Hospital; Henry Soulbrien Desprez and Conway James Francis, Guy's Hospital.

Physiology only.—Lewis Lloyd, University College and Mr. Cooke's School of Anatomy and Physiology; Nevill Pearce King, Charing-cross Hospital; Leonard William Light, St. Thomas's Hospital. Edward Harold Cooper, London Hospital, and John James Blagden, St. Bartholomew's Hospital. Seven candidates were referred in both subjects, five in Anatomy only, and four in Physiology only.

Passed on Thursday, Oct. 12th:—

Anatomy only.—Edward Melrose Bruce Payne, Lyonel John Lock, and Denyes William Fellows Latham, London Hospital; Herbert William Dadgeon, Lewis Thomas Archibald Rowland, Richard Hedden, and Thomas John Augustus Tulke-Hart, Guy's Hospital; Walter Lisle Taylor Goodridge, Guy's Hospital and University College; Edward James Deck, Frederick Adderley Howard Clarke, and Edward Hetley Betts, St. Bartholomew's Hospital; William Henry Pearse, Middlesex Hospital; Herbert John Stevens, Charing-cross Hospital; William John Thomas, Middlesex Hospital and Mr. Cooke's School of Anatomy and Physiology; and Sydney Valentine Hercules Underhill, St. George's Hospital.

Physiology only.—Ernest Alfred Prebble and Eric Norham Scott, Guy's Hospital; John William Fordham, London Hospital; Edward Albert Weber and Philip William James, St. Bartholomew's Hospital; John Averell Alston and Charles Gordon Moffitt, University College; Preston Richard Wallis, University College and Mr. Cooke's School of Anatomy and Physiology; Ernest Downing Warren, Firth College, Sheffield, and University College; Ellacott Leamon Ward and Hugh Martin Case, Middlesex Hospital; Neville Henry Austin and Edmund William Herrington, St. Mary's Hospital; and William Oliver Beddard, St. Thomas's Hospital.

Anatomy and Physiology.—Robert Stanley Minnes and Daniel Vincent Sullivan, Queen's University, Kingston, Canada; Claude Arthur Cary Askew, Guy's Hospital; Ernest Brodribb, St. Mary's Hospital and Mr. Cooke's School of Anatomy and Physiology; Harry Alexander Legge Willis, St. Mary's Hospital; John Sewell Anderson, St. Bartholomew's Hospital; Lyttleton Francis Forbes-Winslow, Charing-cross Hospital; George Williams Lewis, University College.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen having previously passed the necessary examinations and having now attained the legal age of twenty-five years were, at the quarterly meeting of the Council, admitted Fellows of the College:—

Martin Llewellyn Jones, L.R.C.P. Lond., St. Bartholomew's Hospital; diploma of Member dated Feb. 13th, 1890.
Tom Robinson Taylor, M.B., B.S.Lond., L.R.C.P. Lond., Guy's Hospital; diploma of Member dated Nov. 12th, 1891.

VICTORIA UNIVERSITY—OWENS COLLEGE, MANCHESTER.—The following candidates were presented on Oct. 14th:—

Doctor of Medicine.—James Simcock Owens College.
Bachelor of Medicine and Surgery.—John Stephenson (honours), Owens College; John Gray Clegg (honours), Owens College

Edmund Leach Compston (honours); Herbert Thomlinson Nixon (honours), Victoria University; John Pollock Nixon (honours), Victoria University, (four equal); Reginald Alcock, Joseph Harold Ashworth, Henry Alfred Bold, Harold Carlier Cadman, David Hubert Cheetham, Charles Augustus Davies, and Edmund Albert Goulden, Owens College; William Davey Hayward, Victoria University; Henry Charles Heathcote, Owens College; Samuel Herbert House, Victoria University; Edwin Swainson Miller, Victoria University; Richard Webster Nesfield, Owens College; John Joseph O'Hagan and Harry Armitage Robinson, Victoria University; and William Walter Stoney, Yorks.

The following is the result of the first M.B. and Ch.B. examination:—

Chemistry and Physics.—J. W. Anderson, University; P. J. R. Bucknill, Owens; W. J. F. Burges, University; H. M. Cockcroft, Owens; S. S. Depree, University; T. L. Fennell, J. I. Halstead, Walter Hickey, and Eustace Hutton, Owens; H. A. Mawdsley, University; C. H. Moorhouse, S. T. Rowling, and J. E. H. Scott, Yorks; L. S. Whitwam and G. H. Wyse, University; Ernest Young, Owens.

Biology.—J. W. Anderson, Mark Aungier, G. P. Barff, and T. T. Bark, University; P. J. R. Bucknill, J. J. Butterworth, and T. L. Fennell, Owens; Benjamin Gowing, Yorks; Walter Hickey and Robert Kelsall, Owens; J. H. Mason, Yorks; John Milne, John Mooney, and Joseph Moreton, Owens; D. J. O'Keefe, University; W. F. Oyston and J. E. H. Scott, Yorks; J. H. Sheldon and Edwin Stott, Owens; G. H. Wyse, University.

ROYAL UNIVERSITY OF IRELAND.—The following have passed the First Medical Examination:

William Boyd, John Brangan, Edwin J. Butler, Godfrey E. Charles, Henry L. Craig, Thomas Donovan, James M. Dunne, Patrick J. England, David Finnegan, Alexander Grahame, Bartholomew Hanlon, Henry Hanna, George C. Harbinson, Joseph J. Hill, Samuel Hill, William E. Jones, Thomas McCarthy, Edmond McDonnell, Daniel Mahony, Patrick J. Moran, William Nicholson, Patrick M. O'Meara, Robert S. Park, George Ross, Frances Sinclair, John Sloan, Robert W. Stewart, and William J. Sweeney.

The following candidates may present themselves for further Examination for Honours in the subjects mentioned:

Godfrey R. Charles, Botany, Zoology and Physics; James M. Dunne, Physics; Henry Hanna, Botany, Zoology and Chemistry; George C. Harbinson, Botany; Daniel Mahony, Zoology and Physics; George Ross, Physics; and Frances Sinclair, Botany, Zoology and Physics.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS IN IRELAND; CONJOINT SCHEME.—The undermentioned have passed the Second Professional Examination:

M. Cahill, M. A. J. Caraher, J. J. Cormack, Francis Dudley, R. G. M. Harvey, C. E. Hodgson, C. B. Martin, J. F. O'Malley, and F. C. Wright.

THE FEE FOR NOTIFICATION IN PUBLIC BODIES AND IN PRIVATE PRACTICE.—A case of some importance in connexion with the question of the fee payable for the notification of infectious disease has occurred in West Calder, Midlothian. The sheriff-substitute of the Lothians and Peebles, Mr. Hubert Hamilton, heard a case in which Dr. John M. Smith, surgeon, West Calder, sued J. H. Balfour, clerk to the Calder District Committee of the County Council of Midlothian, for the fee of 2*s.* 6*d.* for notifying a case of infectious disease. In his interlocutor the sheriff-substitute says:—"This case raises a short but important point. The pursuer is a medical practitioner in West Calder. As is common throughout the county, the miners belonging to one of the pits there have formed themselves into a club, the members of which contribute a small sum weekly to a fund which is paid, by way of salary, to a medical man, in this case the pursuer, on condition that he attend when necessary, not only the members of the club, but also their families. In the course of his club practice the pursuer had occasion to report a case of infectious disease which had occurred in the family of one of the miners, and the question now raised is which of two fees provided by the 4th Section of the Infectious Diseases (Notification) Act, 1889, is payable to the pursuer by the local authority, the District Committee of the County Council of Midlothian. If the case of infectious disease occurred in the pursuer's 'private practice,' the proper fee would be 2*s.* 6*d.*, while if the case occurred 'in his practice as medical officer' of a 'public body or institution' he would be entitled only to a fee of 1*s.* I cannot say I ever had any doubt how this question should be decided, but as the matter was represented as one of pecuniary importance I thought it right to consult with the sheriff-principal, and we are both of opinion (1) that such a club as I have described is in no sense of the word a public body or institution, and (2) that the case of infectious disease in question did occur in the pursuer's private practice—the attendance being given at the miner's own house and paid for out of the miner's own pocket. I therefore give decree for the amount sued for."

FOOTBALL CASUALTIES.—While playing in a match on the 7th inst., at Celtic Park, Paisley, for the Celtic Club against the Academicals, in the Renfrewshire Cup Competition, a player fractured his clavicle.—During a game on Wednesday last an Eton student fractured his leg.

THE LONDON HOSPITAL MEDICAL COLLEGE.—The following entrance scholarships have recently been awarded:—First Entrance Science Scholarship (£75), C. W. Chaplin: Second Entrance Science Scholarship (£50), divided equally between H. G. Frankling and Alfred Orme. First Buxton Scholarship (Arts), value £30, F. M. Morris; Second Buxton Scholarship (Arts), value £20, J. F. Walker.

ST. BARTHOLOMEW'S HOSPITAL.—The entrance Scholarships in Science at St. Bartholomew's Hospital have been awarded as follow: The scholarship of £75 in biology and physiology to E. C. Morland of Owens College, Manchester; the scholarship of £75 in chemistry and physics to R. H. Bremridge, B.Sc. Lond., B.A. Magdalen College, Oxon.; the junior open scholarship of £150 in biology, chemistry, and physics to H. A. Colwell (Prel. Sci., University of London); the Preliminary Scientific Exhibition to J. E. Robinson; and the Jeaffreson Exhibition in classics and mathematics to G. V. Bull, B.A., Caius College, Cambridge.

THE ÆSCULAPIUS LODGE OF FREEMASONS, No. 2410.—The installation meeting of the Æsculapius Lodge was held at the Café Royal, Regent-street, on Wednesday, Oct. 11th. inst., when Bro. F. Ernest Pocock, M.D., P.M., was installed W.M. for the year. The following is the list of officers:—Bros. Deputy-Inspector-General Belgrave Ninnis, M.D., I.P.M.; Jacob Pickett, M.D., S.W.; G. Crawford Thomson, M.B., J.W.; Danford Thomas, M.D., Treasurer; Thomas Dutton, M.D., P.M., Secretary; Anthony Nutt, S.D.; Frank Oldfield, P.M., J.D.; W. Ernest Dring, P.M., D.C.; E. H. Ezard, M.D., I.G.; H. Kiallmark, P.M., and Deputy-Inspector-General Matthew Coates, M.D., stewards. A large number of members and visitors were present to witness the ceremony of installation. After the masonic duties had been performed the brethren sat down to a banquet; the royal and masonic tonsts were received with the usual enthusiasm. Brother the Rev. P. J. Simpson, P.G.C., made an eloquent speech, in which he highly praised the medical profession for their charity and disinterestedness, which he said were the backbone of masonry, therefore on that account he was delighted to see so many eminent medical masons present, and congratulated them on the success of the Æsculapius Lodge.

LITERARY INTELLIGENCE.—The maintenance of a monthly journal by a hospital is a most effective way of keeping the staff and the student, as well as the present and past students, in pleasant connexion one with another, for which reason the *St. Bartholomew's Hospital Journal* would merit favourable consideration. But, judging from the first number, it should have another claim to attention beyond the good work that it will do by the promotion of *esprit de corps;* for it is a very well printed and readable production. Dr Norman Moore writes of the Abernethian Society, and displays, as ever, abundant knowledge of the archæological side of medicine. Sir Dyce Duckworth's article on Clinical Aptitude, which occupies the position of honour, is the substance of an address delivered before the same Society, and contains many shrewd remarks upon the most effective methods of medical training, among which he does not include the old system of apprenticeship. Mr. Howard Marsh and Dr. Samuel West are responsible for the clinical records which are to form a feature of the journal, and the remainder of the contents consists of an account of the domestic affairs of the hospital, the calendars for work and sport, and the names of the junior officers and prizemen. The editorial department is to be congratulated upon the venture, which must prove a practical success if the standard of the first issue is maintained; but to effect this they must not be too good-natured. We see that amongst the formulated objects of the journal is one to give publicity to original articles and verse, and to act as a means by which contributors may learn to perfect themselves in the art of writing. If the columns of the *St. Bartholomew's Hospital Journal* are thrown open to any great extent to the idylls and themes of junior students, it is to be feared that what will be gained in comicality will be lost in literary or clinical value.

EPIDEMIOLOGICAL SOCIETY OF LONDON.—The opening meeting of this society for the session will be held at 11, Chandos-street, Cavendish-square, on Nov. 15th, at 8 P.M., when Dr. J. F. Payne will deliver the inaugural address on the History of Epidemiology in England. During the session communications will be read from Dr. E. D. Dickson, physician to the British Embassy at Constantinople, on the recent manifestations of cholera in Persia, Mesopotamia, and Syria.

LIVERPOOL MEDICAL INSTITUTION.—The annual dinner of this institution was held at the Adelphi Hotel on the 12th inst., Dr. T. R. Glynn, President, in the chair. One hundred and eleven members and their friends were present, amongst whom were Mr. Sampson (city coroner), Mr. Boulnois (city engineer), Professor Lodge, Surgeon-Lieutenant-Colonel Muir, the Swedish Consul and several clergymen. The toast of the evening, "The Medical Institution," was proposed by the Coroner and replied to by the President. Other speakers were Professor Lodge, Mr. Boulnois and the Rev. Mr. Adams. In proposing a vote of thanks to the Chairman, Mr. J. Newton, one of the oldest members, gave great delight and amusement to his younger hearers by his description of general practice as it was when he first went to Liverpool fifty years ago. The music, which was supplied by the cathedral quartette, was much appreciated and added to the enjoyment of the evening.

PROPOSED MEMORIAL TO THE LATE SURGEON-MAJOR PARKE.—A meeting was held at the Shelbourne Hotel, Dublin, on the 9th inst., for the purpose of appointing a committee and opening a fund, in order to carry out a generally expressed wish that a memorial should be erected in honour of the late Surgeon-Major Parke. The President of the Royal College of Surgeons, Ireland, presided, and those present included Sir R. W. Jackson, Bart.; Mr. J. R. Campbell, Q.C.; Surgeon-Major-General Collis, P.M.O.I.; Rev. G. B. Taylor, LL.B.; Surgeon-Captain Tuke, A.M.S.; Surgeon-Major J. J. Greene, A.M.S.; Surgeon-Major M. W. Kerin, A.M.S.; Brigade-Surgeon-Lieutenant-Colonel Hughes; Surgeon-Major T. M. Corker; Surgeon-Major R. T. Beamish; Brigade-Surgeon-Lieutenant-Colonel P. L. F. Kilroy; Dr. Francis T. Heuston; Sir George Porter, Bart.; Dr. E. E. Knox, Vice-President of the Royal College of Physicians, Ireland; Mr. Kendal Franks, F.R.C.S. Irel.; Dr. Henry Fitzgibbon; Surgeon-Major T. H. Sweeny, I.M.S.; Mr. Thomas Roberts, Mr. George F. Stewart Corry, Mr. Cox, Mr. H. Malley, Dr. William Moore, Dr. Jacob, Mr. Tobin, Dr. Finny, Dr. R. Benson, and Dr. A. Benson. Letters were received from the following, sympathising with the object of the meeting: Dr. George H. Kidd, Dr. Alfred Smythe, Mr. Thornley Stoker, Dr. William H. Newell, Dr. E. J. Nixon, Dr. A. H. Jacob, Mr. Edgar Flinn, Sir James Paget, Dr. John Knott, Sir William Jenner, Mr. R. A. Duke, D.L.; Mr. J. Mounteny Jephson, Mr. J. R. Robertson, Rev. S. Lewis, Mr. Edwin C. King, Rev. F. Clarke, Mr. A. O'Conor, and the Dean of Christchurch, Oxford. Mr. H. M. Stanley, it was mentioned, had written a letter and enclosed a subscription of £50. Several other subscriptions were received. It was resolved that all those present at the meeting should be appointed a general committee. A working committee was also appointed. Mr. Cox and Mr. Herbert Malley consented to act as honorary secretaries, the offices to be at 24, Kildare-street, Dublin, where all subscriptions will be received and acknowledged. It was decided that the Bank of Ireland should be the treasurers to the fund. Sir George Porter moved, "That, in view of the conspicuous services of the late Surgeon-Major Thomas H. Parke, A.M.S., it is desirable that a permanent memorial be raised to perpetuate his name and his life-work, and that the following be appointed a committee to give effect to this resolution, with power to add to their number." He said that nobody could have been acquainted with the late Surgeon-Major Parke without liking him. He was a credit to Ireland and to their profession. Dr. William Moore seconded the motion. Sir Robert Jackson, in supporting the motion, said that as a comrade of the late Surgeon-Major Parke he knew him to be a kind, attentive and worthy man. The motion was adopted. A short discussion took place as to what the form of the memorial should take. Surgeon-General Collis thought that a statue in Dublin would be the best form, but he was anxious that the members of the deceased's family and the committee of subscribers should be given an opportunity of expressing their views in the matter. The question was left open for the present. A vote of thanks to the chairman brought the meeting to a close.

MEDICAL MAGISTRATES.—Dr. Thomas W. Thursfield of Leamington and Dr. E. L. Adeney of Tunbridge Wells have been placed on the Commission of the Peace for the county of Warwick and borough of Tunbridge Wells respectively.

KING'S COLLEGE, LONDON.—The following entrance scholarships and exhibitions have been awarded:—Warneford Scholarships: C. A. Sprawson and L. D. Saunders, £75 each; G. L. Atkinson, £50. Sambrooke Exhibitions: E. M. Saunders, £60; T. H. Gardner, £40. Clothworkers' Exhibitions: H. R. Brown, £60; W. J. Fuller, £40.

MANCHESTER PATHOLOGICAL SOCIETY.—The annual meeting of the above Society was held at Owens College on Wednesday, Oct. 11th, Dr. Judson S. Bury, the retiring President, in the chair. The following gentlemen were elected officers for the ensuing session. President: F. A. Southam, M.B. Vice-Presidents: W. Coates and H. R. Hutton, M.B. Treasurer: R. B. Wild, M.D. Secretary: T. Harris, M.D. Committee: T. N. Kelynack, M.D., S. Moritz, M.D., C. E. Richmond, E. Roberts, F. M. Godde Smith, W. Thorburn, B.S., A. T. Wilkinson, M.D., and J. B. Wolstenholme, F.R.C.V.S. After receiving and considering the reports of the treasurer and committee the remainder of the evening was devoted to an examination of a large and interesting collection of preparations exhibited as card specimens.

THE AMBULANCE WORK OF THE CITY POLICE.—The awards of the St. John Ambulance Association to the City Police were distributed by the Lord Mayor at the Mansion House on Oct. 16th. Lieut.-Colonel Smith, the Commissioner of the City Police, referred to the great progress that had been made in the work during the past year. Every man, he said, who joined the force had to attend the ambulance classes and to remain in them until a certain state of efficiency was attained. Colonel Thackeray incidentally remarked that on the occasion of the Royal wedding they had forty-four stations along the route, and between 1400 and 1500 cases were successfully treated. Mr. Brudenell Carter said that, as a member of the Council of the Order of St. John, he had before him continual evidence of the enormous value of the training for ambulance work. Fifty-seven first certificates, forty-two second certificates, and thirty-seven medallions were awarded.

SOCIETY FOR THE RELIEF OF WIDOWS AND ORPHANS.—The directors met for the quarterly court on Wednesday, Oct. 11th, the president, Sir James Paget, presiding. One member was elected and the deaths of two reported. There were no fresh applications for grants from widows or orphans. Three widows had died and one orphan had become ineligible for further grants since the last court. One of the widows had received £997 from the Society. Applications for the renewal of their grants were read from fifty-four widows, nine orphans, and four orphans on the Copeland Fund, and it was decided that £1206 should be divided among them in January next. The expenses of the quarter were £64 9s. The directors resolved that at Christmas a present should be given—viz., £5 to each widow, £2 to each orphan, and £5 to each of the four orphans on the Copeland Fund. It was determined that at Lady Day the offices of the Society should be removed to the premises of the Medical Society of London, 11, Chandos-street, Cavendish-square.

UNIVERSITY COLLEGE, LIVERPOOL.—At the half-yearly meeting of the Court of Governors of this college, held on the 14th inst., after the business of electing a president in the room of the late Earl Derby had been decided in favour of the present earl, the chairman of the meeting, Mr. Edward Laurence, spoke of some of the more pressing requirements which hampered the free advance of the college. One of these needs was the establishment of a new school of medicine, the present one not being adequate to the demands made upon it. Though there was every reason to be satisfied with the work hitherto carried on, yet, said the speaker, there could be no doubt that Liverpool had been rather backward in general educational matters—a defect which the governors trusted would be remedied by the establishment of the new school. In Principal Rendall's report, which was submitted to the meeting, allusion was made to the want of sufficient accommodation for the study of biology, a subject rendered incumbent on medical students by the new regulations of the Conjoint Examining Board of the Colleges of Physicians and Surgeons.

THE PUBLIC HEALTH (SCOTLAND) ACT.—It having been represented to the Board of Supervision that, as the assessments under the Public Health (Scotland) Act in counties fall to be levied by the County Council in the same manner as the Poor-law assessment, and that as changes in the terms of the classifications and the amount of deductions may be made by parochial boards without the knowledge of the County Council, it would be desirable that the inspectors of poor should be instructed to intimate any such changes to the county clerk, the board are of opinion that the request is reasonable, and have directed the various inspectors of poor, in the event of any change being hereafter made, to communicate without delay to the county clerk for the information of the County Council.

MEDICAL DEFENCE UNION (LIMITED).—The usual fortnightly meeting of the council was held on Oct. 11th at 429, Strand, W.C., Mr. Victor Horsley, F.R.S., President, in the chair. There was a large attendance of members of the council present, representatives from Cardiff and Norwich being found in their places. A lengthy agenda paper had to be dealt with, many applications from members for legal assistance and advice having come forward since the last meeting. Eleven new members were elected. Owing to the pressure of "cases" a resolution to impose an entrance fee upon new members after Jan. 1st, 1894, had to be postponed until the next meeting. Many other questions of interest to the profession generally and the members of the Union in particular were dealt with, and the absolute necessity of holding meetings twice a month was again shown by the amount of business transacted.

BOOKS ETC. RECEIVED.

AT THE UNIVERSITY PRESS, Cambridge.
Elementary Palæontology for Geological Students. By Henry Woods, B.A., F.G.S. 1893. pp. 222.

BAILLIÈRE, TINDALL, & COX, King William-street, Strand, London.
Brain Surgery. By M. A. Starr, M.D., Ph.D. Illustrated. 1893. pp. 295. Price 10s.
Clinical Gynæcology; being a Handbook of Diseases peculiar to Women. By T. M. Madden, M.D., F.R.C.S. Edin. Illustrated. 1893. pp. 562. Price 12s. 6d.
Post-Graduate Lectures. On the Surgical Treatment of Deformities. By W. Adams, F.R.C.S. 1893. pp. 55. Price 2s. 6d.

BALE, JOHN, & SONS, Great Titchfield street, London, W.
Syphilis: its Treatment by Intra-muscular Injections of Soluble Mercurial Salts. By Edwd. Cotterell, F.R.C.S. Eng. 1893. pp. 36.

BELL & BRADFUTE, Edinburgh, and SIMPKIN, MARSHALL & CO. London.
The Plot upon the Brain: Studies in History and Psychology. By William W. Ireland, M.D. Edin. Second Edition. 1893. pp. 388.

CASSELL & CO., London.
Tumours, Innocent and Malignant, their Clinical Features and Appropriate Treatment. By J. Bland Sutton, F.R.C.S., L.R.C.P. Lond. Illustrated. 1893. pp. 511.

CHURCHILL, J. & A., New Burlington-street, London.
A Treatise on Hygiene and Public Health. Edited by T. Stevenson, M.D., F.R.C.P. Lond., and Shirley F. Murphy. In three volumes. Vol. II. 1893. pp. 847. Price 32s

DEUTICKE, FRANZ, Leipzig und Wien.
Die Blennorrhoe der Sexual-organe und ihre Complicationen. Von Dr. Ernst Finger. 1893. pp. 557.

GILL, GEO., & SONS, Warwick-lane, London, E.C.
Measurement of Light and Colour Sensations. By Jos. W. Lovibond, F.R.M.S. pp. 132. Price 7s. 6d.

JOHNSTON, W. & A. K., Edinburgh and London.
Selected Papers in Gynæcology and Obstetrics. By D. B. Hart, M.D., F.R.C.P. Eng. 1893. pp. 229.

KEGAN PAUL, TRENCH, TRÜBNER & CO., Paternoster House, Charing-cross-road, London.
Analysis of Milk and Milk Products. By H. Leffmann, M.D., Ph.D., and William Beam, M.A., M.D. 1893. pp. 91.
Lectures on the Comparative Pathology of Inflammation. Delivered at the Pasteur Institute in 1891. By E. Metchnikoff. Translated by F. A Starling and E. H. Starling, M.D. Illustrated. 1893. pp. 218. Price 12s.
Methods of Practical Hygiene. By Professor K. B. Lehmann (Würzburg). Translated by W. Crookes, F.R.S. Illustrated. Vols. I and II. 1893. Price 31s. 6d.

LEWIS, H. K., Gower-street, London, W.C.
Asiatic Cholera: Its History, Pathology, and Modern Treatment. By A. J. Wall, M.D. Lond. 1893. pp. 194
A Guide to the Examination of the Urine. By J. W. Legg, F.R.C.P. Lond. Seventh Edition. Edited by H. L. Jones, M.A., M.D. 1893. pp. 139. Price 3s 6d.

LIVINGSTONE, E. & S., Edinburgh.
The Student's Handbook of Gynæcology. Illustrated. 1893. pp. 178.

LONGMANS, GREEN, & CO., London.
The Narrative of a Busy Life: An Autobiography. By A. Hill Hassall, M.D. Lond. 1893. Price 5s.

MACDOUGALL, ALEX., Buchanan-street, Glasgow.
Transactions of the Glasgow Pathological and Clinical Society. Vol. IV. Sessions 1891-1893. Edited by John H. Carslaw, M.B., C.M., Editorial Secretary. 1893. pp. 255.

MACMILLAN & CO., London and New York.
A Text-book of Physiology. By M. Foster, M.A., M.D., LL.D., F.R.S. Illustrated. Sixth Edition. Part I., comprising Book I.: Blood; the Tissues of Movement; the Vascular Mechanism. 1893. pp. 387. Price 10s. 6d.
Handbook of Public Health and Demography. By Edward F. Willoughby, M.D. Lond. 1893. pp. 509. Price 4s. 6d.

PENTLAND, YOUNG J., Edinburgh and London.
Béri-Béri: Its Etiology, Symptoms, Treatment, and Pathology, with Appendix. Illustrated. By A. J. M. Bentley, M.D., M.R.C.S. 1893. pp. 245.

PHILIP, GEO., & SON, Fleet-street, London.
The Practical Guide to Algiers. By Geo. W. Harris. Fourth Edition. 1894. pp. 176.

PIPER & CARTER, Furnival-street, Holborn, London, E.C.
Pictorial Effect in Photography. By H. P. Robinson. Fourth Edition. 1893. pp. 193. Price 3s. 6d.

REBMAN, F. J., Adam-street, Strand, London; and THE MEDICAL PRESS CO., Philadelphia.
Hernia: Its Palliative and Radical Treatment in Adults, Children, and Infants. By Thomas H. Manley, A.M., M.D. 1893. pp. 234

SIMPKIN, MARSHALL & CO., London; and CORNISH BROTHERS, New-street, Birmingham.
On Gout as a Peripheral Neuroals. By W. F. Wade, F.R.C.P. Lond. 1893. pp. 59.

SKEFFINGTON & SON, Piccadilly, London.
Now for a Story. A collection of Short Original Stories for Children. By Fanny Barry and Others. 1893. pp. 241.

THE CLARENDON PRESS, Oxford; HENRY FROWDE, Amen-corner, London; and H. K. LEWIS, Gower-street, London.
Healthy Hospitals. Observations on Some Points connected with Hospital Construction. By Sir Douglas Galton. Illustrated. 1893. pp. 287.

THE RECORD PRESS, 376, Strand, London, W.C.
Smiles and Tears. By A. Hood. 1893. pp. 40.

Hygiene Review (World's Vegetarian Congress Number), October, 1893; illustrated; edited by Charles W. Forward (The Memorial Hall, Farringdon street, London, E.C).—The Insurance File-Accounts (Reports); August, 1893 (W. J. West, 21, Godliman-street, London, E.C.); price 1s.—Archives de Physiologie Normale et Pathologique: No. 4; October, 1893 (G. Masson, Paris).—The Journal of Physiology, Vol. XV., No. 3 (Cambridge Engraving Company, Cambridge), price 8s. 6d.—Archiv für Dermatologie und Syphilis, XXV. Jahrg., Heft VI. (W. Braumüller, Wien und Leipzig, 1893).—The Employment of Accumulators in Medicine and the Best Means of Charging Them: by Dr. Lichtwitz, Bordeaux; reprint.—Bibliotheca Medica: Aus dem Pathologisch-Anatomischen Institute der Universität Zürich; Anatomische Untersuchungen über die Osteomalacie: von Dr. Hugo Ribbert; mit zwei Tafeln (T. G. Fisher & Co., Cassel, 1893).—The Report of the Department of Pathology of University College, London, 1892-1893), Vol. I.; edited by Victor Horsley, F.R.S., F.R.C.S., and R. Boyce, M.B. (Langley & Son, George-street, London, N.W.).—Physic and Physicians as depicted in Plato: by Wm. Osler, M.D., F.R.C.P. Lond.; reprint (Damrell & Upham, Boston, U.S.A., 1893).—Tuberculous Pleurisy: by William Osler, M.D.; reprint (David Clapp & Son, Boston, U.S.A., 1893).—Abstract of the Report of the Leprosy Commission in India: by N. H. Choksy (Baillière, Tindall & Cox, London; and N. K. Rao & Co., Bombay, 1893).—The Medico-Legal Journal (New York), June, 1893 (Clark Bell, 57, Broadway, New York).—Sulla Morfogenesi dei Microrganismi e sui loro Prodotti di Secrezione nelle colture e nei tessuti affetti comunicazione con dimostrazioni fatta dal Professor Otto von Schrön (Tipografia della Riforma Medica, Napoli).—A New Method of Reducing Dislocation of the Cervical Vertebræ: by G. L. Walton, M.D.; reprint (The Alliance Press, New York).—A New Chapter in the History of Labour; Parts I. and II.; September, 1893 (Unwin Brothers, Pilgrim-street, Ludgate-hill, London); price 1s.—Revue des Sciences Médicales, No. 84; Oct. 15th, 1893 (G. Masson, Paris).—Die Modernen Fiebertheorien: von Dr. Alexander Rabe, Berlin (August Hirschwald, Berlin, 1894).—Ueber Irrthum und Irrsein: Redegehalten zur Feier des Stiftungstages der Militärärztlichen Bildungsanstalten im August, 1893: von Professor Dr. F. Jolly (August Hirschwald, Berlin, 1893).—Calendar of the Royal College of Surgeons of England, July, 1893 (Taylor & Francis, London); price 1s.—The Journal of Comparative Pathology and Therapeutics: edited by J. McFadyean, M.B., B.Sc., F.R.S. Eng.; September, 1893 (W. & A. K. Johnston, Edinburgh and London); price 2s. 6d. quarterly.—How to Avoid Doctors' Bills: Six Lectures on Public Health and Preventable Disease: by Sidney Davies, M.A., M.D. Oxon. (F. J. Cattermole, Woolwich); price 4d.—Amber: All about it: by J. G. Haddow (at the Office of "Cope's Tobacco Plant," Liverpool, 1892); price 3d

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.*

BERRY, F. C., M.D., B.S. Dubl., has been appointed, *pro tem.*, Medical Officer of Health for Burnham.

BIRDWOOD, R. A., M.D., M.R.C.S., has been appointed Medical Superintendent of the Metropolitan Asylum District.

BOYLE, ROBERT, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Inspector to the Universal Whitelead Works, London.

BROOK, W. F. Jun., F.R.C.S. Eng., L.M., has been appointed a Surgeon to Swansea Hospital.

BURNES, H. F., L.R.C.P. Irel., L.F.P.S. Glasg., has been appointed Medical Officer for the Dent Sanitary District of the Sedburgh Union, vice Proud.

BUTTAR, C., M.B., B.S. Camb., L.R.C.P. Lond., M.R.C.S., has be appointed Senior House Surgeon, St. Bartholomew's Hospital.

COUTTS, FRANCIS J. H., M.B., Ch.B. Vict., has been appointed Resident Medical Officer to the Victoria Hospital, Burnley, vice Sinclair, resigned.

EDGECOMBE, WILFRID, M.B. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed Surgical Tutor and Registrar to the Royal Infirmary, Liverpool.

FORBES, N. HAY, L.R.C.P. Lond., M.R.C.S., has been appointed a Medical Officer on the Medical Staff of the Tunbridge Wells and Rusthall Provident Dispensary.

HELME, T. ARTHUR, M.D., F.R.S. Eng., has been appointed Honorary Assistant Surgeon to the Clinical Hospital for Women and Children, Manchester.

HEPBURN, M. L., M.B., B.S. Lond., M.R.C.S., L.R.C.P., has been appointed Senior House Surgeon, St. Bartholomew's Hospital.

HODGSON, CHARLES, M.R.C.S., L.R.C.P. Lond., has been appointed Assistant House Surgeon to the County Hospital, York.

JOHNSTON, JOHN, M.D. Edin., C.M., has been appointed Honorary Medical Officer to the Bolton Infirmary.

JONES, W. B., M.B., B.S. Lond., L.R.C.P., M.R.C.S., has been appointed Senior House Surgeon, St. Bartholomew's Hospital.

KING, PRESTON, M.B., B.S. Camb., M.R.C.S., has been appointed Honorary Medical Officer to the Royal United Hospital, Bath.

KIRKPATRICK, WILLIAM, M.D., B.S. Dubl., has been appointed Honorary Surgeon to the Stourbridge Dispensary.

MALLETT, F. R., M.B., C.M., L.R.C.S., L.R.C.P. Edin., has been appointed Honorary Medical Officer to the Bolton Infirmary.

MOORHEAD, G. H., L.R.C.P., L.M., L.R.C.S. Irel., has been appointed Medical Officer for the Fifteenth Sanitary District of the North Brierley Union.

MORISON, J., M.D. Edin., M.R.C.S., D.P.H. Camb., has been appointed Medical Officer to the Sisters' Hospital, St. Albans.

MOTHERSOLE, R. D., M.D. Lond., B.S., L.R.C.P., F.R.C.S., has been appointed Honorary Medical Officer to the Bolton Infirmary.

NEALE, GEO., L.R.C.P., L.M., L.R.C.S. Edin., has been appointed Medical Officer to the Barry Port Sanitary Authority.

OLIVE, E. J. P., M.B. Camb. L.R.C.P. Lond., F.R.C.S., has been appointed House Surgeon to the Warneford Hospital, vice Mackinnon.

ORR, JOHN, M.B., C.M. Edin., M.R.C.S., L.R.C.P. Lond., has been appointed Resident Medical Officer to the Chalmers Hospital, Edinburgh.

PATERSON, H. J., L.R.C.P. Lond., M.R.C.S., has been appointed Senior House Surgeon, St. Bartholomew's Hospital.

ROBINSON, M. A., L.R.C.P., L.R.C.S. Edin., has been appointed Medical Officer for the Fifth Sanitary District of the Henstead Union.

SAUNDERS, H., M.R.C.S., has been appointed Medical Officer for the Diddington No. 1 Sanitary District of the Woodstock Union.

SHEARER, PITCAIRN T., L.R.C.P. & S. Edin., has been appointed Medical Officer for the Second District of the Leicester Union.

SMITH, JOHN, M.A., M.D. Edin., M.R.C.S., has been appointed Medical Officer to the Post Office, Kirkcaldy, N.B., vice Campbell, deceased.

SOUTHEY, A. J., M.R.C.S., has been reappointed Medical Officer for the Slough Urban Sanitary District.

STEIN, CHARLES, M.D., C.M. Edin., has been appointed Medical Officer for the Workhouse of the Shipston-on-Stour Union.

STOCKS, W. P., F.R.C.S. Eng., has been appointed Assistant Surgeon to the Clinical Hospital for Women and Children, Manchester.

THOMAS, J. E., M.B., C.M. Edin., has been appointed Medical Officer to the Bangor District Branch of the London and North-Western Railway Company's Medical Club.

TYNDALE, W. R., M.B. C.M. Aberd., L.R.C.P. Lond., M.R.C.S., has been reappointed Medical Officer for the Hampton and New Hampton Sanitary Districts of the Kingston Union.

WALSH, DAVID, M.B., C.M., has been appointed Assistant Physician to the Western Skin Hospital, Great Portland-street, W.

WILKINSON, J., M.B., M.S. Edin., has been appointed Medical Officer for the Kirton Sanitary District of the Boston Union.

WYLIE, ANDREW, M.B., C.M. Glasg., has been appointed Medical Officer and Public Vaccinator to the Marsden District of the Huddersfield Union, Surgeon and Medical Referee to the London and North-Western Railway Standedge Tunnel Works, and Medical Referee to the Prudential Assurance Company for the Marsden District.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BELGRAVE HOSPITAL FOR CHILDREN, 77 and 79, Gloucester-street, S.W.—Physician in Charge of the Out-patients.

BIRMINGHAM AND MIDLAND FREE HOSPITAL FOR SICK CHILDREN.—Acting Physician.

BIRMINGHAM AND MIDLAND FREE HOSPITAL FOR SICK CHILDREN.—Surgeon Dentist.

BRIXTON, STREATHAM, AND HERNE-HILL DISPENSARY.—Resident House Surgeon, unmarried. Salary £150 per annum, with furnished apartments, attendance, coal and gas. Applications to the Secretary, at the Dispensary, Water-lane, Brixton.

CHARING CROSS HOSPITAL, W.C.—Surgeon Dentist.

CITY OF SHEFFIELD.—Resident Medical Superintendent of the two City Hospitals for the Treatment of cases of Infectious Disease. Salary £200 per annum, with board, lodging, and attendance. Applications to the Town Clerk, Town Clerk's Office, Sheffield.

GENERAL HOSPITAL, Nottingham.—Assistant House Physician for six months. Board, lodging and washing in the hospital provided.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physicians.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Assistant Resident Medical Officer. Salary £50 per annum, with board and residence.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.—Surgical Registrar and Anæsthetist for one year. An honorarium of £40 at the expiration of that term.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Resident Medical Officer, for four months. Salary at the rate of £60 per annum, with board and residence.

THE GREAT NORTHERN CENTRAL HOSPITAL, HOLLOWAY-ROAD, N.—Surgeon to out-patients.

TORBAY HOSPITAL AND PROVIDENT DISPENSARY, Torquay.—Junior House Surgeon and Dispenser, unmarried. Salary £80 per annum, with board, lodging and attendance (wine, spirits, beer and washing excepted).

Births, Marriages and Deaths.

BIRTHS.

BRADBURY.—On Oct. 4th, at 25, Upper Dicconson-street, Wigan, the wife of John A. Bradbury, M.R.C.S. Eng., L.S.A. Lond., of a son.

CARLESS.—On Oct. 13th, at 10, Welbeck-street, W., the wife of Albert Carless, M.S., F.R.C.S., of a son.

CAVE.—On Oct. 16th, at Crewkerne, Somerset, the wife of Dr. Edward J. Cave, of a daughter.

DOUGLAS.—On Oct. 12th, at Palmerston-place, Edinburgh, the wife of Dr. Archibald Home Douglas, F.R.C.P. Eng., of a daughter.

HALLEY.—On Oct. 17th, at Park House, Fulham, S.W., the wife of William Halley, L.R.C.P. Lond., M.R.C.S. Eng., of a son.

MILLIGAN.—On Oct. 16th, at 337, Oxford-road, Manchester, the wife of W. Milligan, M.D., of a son.

NICHOL.—On Oct. 11th, at Ethelbert-terrace, Margate, the wife of Frank Edward Nichol, M.A., M.B., of a son.

SCULLY.—On Oct. 7th, at Hetowra, Hartfield-square, Eastbourne, the wife of Surgeon-Lieutenant-Colonel J. Scully, of twins—a girl and boy.

THOMSON.—On Oct. 12th, at Coates-crescent, Edinburgh, the wife of John Thomson, M.D., F.R.C.P. Eng., of a son.

WELLS-WITHAM.—At Singri, Tinsukia, Luckimpur District, Assam, the wife of Ernest Wells-Witham, M.R.C.S., of a daughter.

MARRIAGES.

BOWEN—DE STE. CROIX.—On Oct. 12th, at Streatham Parish Church, Surgeon-General Robert Bowen, of Banwell Abbey, Somerset, to Anna Louisa, widow of the late J. P. de Ste. Croix, Lieutenant-Colonel, Royal Jersey Militia.

BROWN—FORBES.—On Oct. 14th, at Marylebone Parish Church, Frederick N. Brown, M.R.C.S., of Pirbright, Surrey, to Florence Helen, elder daughter of Archibald Forbes.

LOW—HAYNE.—On Oct. 17th, at St. Martin's, Wootton, Kent, Percy Charles Low, B.A., M.B., B.C. Camb., of Elmstead, Tunbridge Wells, to Rose, daughter of the late H. W. Hayne, of The Chestnuts, South Tottenham.

LYONS—WALTERS.—On Oct. 17th, at the Parish Church, Reigate, Algernon William Lyons, M.B., of Thames Ditton, Surrey, to Lilian Mary, eldest daughter of John Walters, M.B., J.P., Reigate.

DEATHS.

BUCK.—On Oct. 14th, at 48, Primrose-hill-road, N.W., Alfred Henry Buck, M.R.C.S., L.R.C.P., &c., after three days' illness, from peritonitis, aged 50 years. Interment Wednesday, the 18th inst., at Abney-park Cemetery, 2.45 P.M.

TAYLOR.—On Oct. 11th, at the residence of his mother, Lisnamallard, Henry John Taylor, M.D., M.C.H., &c., Ex Scholar Queen's College, son of the late John Taylor, Inniskilling Fusiliers, and grandson of Lady Frances Moore.

WALKER.—On Oct. 10th, at West Dulwich, William Walker, M.D., LL.D., Honorary Physician to the Queen, Deputy-Surgeon-General Indian Medical Service, retired, aged 60 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages and Deaths.

Medical Diary for the ensuing Week.

Monday, October 23.

KING'S COLLEGE HOSPITAL.—Operations, 2 P.M.; Fridays and Saturdays, at the same hour.

ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1.30 P.M.; and on Tuesday, Wednesday, Friday, and Saturday at the same hour.

ST. MARK'S HOSPITAL.—Operations, 2 P.M.; Tuesday, 2.30 P.M.

ST. THOMAS'S HOSPITAL.—Ophthalmic Operations, 2.30 P.M.; Friday, 2 P.M.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, daily at 10 A.M.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1.30 P.M.; and each day at the same hour.

CHELSEA HOSPITAL FOR WOMEN.—Operations, 2 P.M.; Thursday, 2 P.M.

HOSPITAL FOR WOMEN, SOHO-SQUARE.—Operations, 2 P.M.; and on Thursday at the same hour.

METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.

ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.

CENTRAL LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M., and each day in the week at the same hour.

UNIVERSITY COLLEGE HOSPITAL. Ear and Throat Department, 9 A.M.: Thursday, 9 A.M. Eye Department, 2 P.M.

ROYAL EYE HOSPITAL, SOUTHWARK.—Hour of attendance, 2 P.M., and other days at the same hour. Operations daily.

LONDON POST-GRADUATE COURSE.—Royal London Ophthalmic Hospital, Moorfields: 1 P.M., Mr. W. Lang: Conjunctival Affections.

THROAT HOSPITAL (Golden-sq.).—5 P.M. Dr. J. W. Bond: Post-nasal Growths (illustrated by cases).

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN (Leicester-sq., W.C.)—5.30 P.M. Dr. Morgan Dockrell: Syphiloderma.

Tuesday, October 24.

GUY'S HOSPITAL.—Operations, 1.30 P.M., and on Friday at the same hour. Ophthalmic Operations on Monday at 1.30 and Thursday at 2 P.M.

CANCER HOSPITAL, BROMPTON.—Operations, 2 P.M.; Saturday, 2 P.M.

WESTMINSTER HOSPITAL.—Operations, 2 P.M.

WEST LONDON HOSPITAL.—Operations, 2.30 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M. Skin Department, 1.45; Saturday, 9.15.

ST. MARY'S HOSPITAL.—Operations, 1.30 P.M. Consultations, Monday, 2.30 P.M. Skin Department, Monday and Thursday, 9.30 A.M. Throat Department, Tuesdays and Fridays, 1.30 P.M. Electro-therapeutics, same day, 2 P.M.

LONDON POST-GRADUATE COURSE.—Hospital for Skin Diseases, Blackfriars: 4 P.M., Mr. Jonathan Hutchinson: Syphilitic Lupus.—Bethlem Hospital: 2 P.M., Dr. Hyslop: Stupor, Catalepsy, Katatonia, Dementia.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.—Mr. Anthony A. Bowlby: Disease of many Joints, probably of Syphilitic Origin.—Mr. C. B. B. Keetley: Operations without Anæsthesia. Presentation of the Marshall Hall Memorial Prize and Diploma to Dr. W. R. Gowers.

Wednesday, October 25.

NATIONAL ORTHOPÆDIC HOSPITAL.—Operations, 10 A.M.

MIDDLESEX HOSPITAL.—Operations, 1.30 P.M.; Saturdays, 2 P.M. Obstetrical Operations, Thursdays, 2 P.M.

CHARING-CROSS HOSPITAL.—Operations, 3 P.M., and on Thursday and Friday at the same hour.

ST. THOMAS'S HOSPITAL.—Operations, 1.30 P.M.; Saturday, same hour.

LONDON HOSPITAL.—Operations, 2 P.M.; Thursday and Saturday, same hour.

ST. PETER'S HOSPITAL, COVENT-GARDEN.—Operations, 2 P.M.

SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.—Operations, 2.30 P.M.

GREAT NORTHERN CENTRAL HOSPITAL.—Operations, 2 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 1.30 P.M. Dental Department, 9.30 A.M. Eye Department, 2 P.M.

ROYAL FREE HOSPITAL.—Operations, 2 P.M., and on Saturday.

CHILDREN'S HOSPITAL, GREAT ORMOND-STREET.—Operations, 9.30 A.M. Surgical Visits on Wednesday and Saturday at 9.15 A.M.

LONDON POST-GRADUATE COURSE.—Hospital for Consumption, Brompton: 4 P.M., Dr. J. M. Bruce: Cases in the Wards.—Royal London Ophthalmic Hospital: 8 P.M., Mr. A. S. Morton: Retinal Affections.

THROAT HOSPITAL (Golden-sq.).—5 P.M. Dr. Greville MacDonald: Rhinitis (illustrated by cases).

HUNTERIAN SOCIETY.—8.30 P.M. Dr. Arthur Davies: The Thyroid Gland and its Therapeutic Uses in Myxœdema and Certain Skin Conditions (illustrated by cases, specimens and preparations). Dr. Radcliffe Crocker, Dr. Beadles, Dr. Fletcher Beach, Dr. Pasteur and others will discuss the subject.

Thursday, October 26.

ST. GEORGE'S HOSPITAL.—Operations, 1 P.M. Surgical Consultations, Wednesday, 1.30 P.M. Ophthalmic Operations, Friday, 1.30 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M. Ear and Throat Department, 9 A.M. Eye Department, 2 P.M.

LONDON POST-GRADUATE COURSE.—Hospital for Sick Children, Gt. Ormond-st.: 3.30 P.M., Dr. Barlow: Abdominal Tuberculosis.—National Hospital for the Paralysed and Epileptic: 2 P.M., Dr. Buzzard: Clinical Demonstration.—London Throat Hospital (Gt. Portland-st.): 8 P.M., Mr. G. Stoker: Chronic Glandular Diseases of the Naso-pharynx.—Central London Sick Asylum: 5.30 P.M., Mr. Thomas Bryant: Cases in the Wards.

Friday, October 27.

UNIVERSITY COLLEGE HOSPITAL.—Eye Department, 2 P.M.

LONDON POST-GRADUATE COURSE.—Hospital for Consumption, Brompton: 4 P.M., Dr. J. M. Bruce: Cases in the Wards.

CLINICAL SOCIETY OF LONDON.—Living Specimens at 8 P.M.:—Dr. Frederick Taylor: A case of Cancrum Oris after Typhoid Fever.—Mr. Charters Symonds: Successful Operation for Ectopia.—Mr. Balmanno Squire: Morphœa of Fifth Nerve.—Mr. Pearce Gould: (1) A case of Excision of the Palmar Synovial Membranes; (2) A case of Hypertrophy without Dilatation.—Dr. Hale White: (1) Two cases of Dark Urine in Pernicious Anæmia; (2) Congenital Syphilitic Disease of Liver. Papers at 9 P.M.:—Mr. Bidwell: A case of Gastro-jejunostomy.—Dr. Frederick Taylor: A case of Disease of the Corpora Quadrigemina.—Mr. Mansell Moullin: Traumatic Arachnoid Hæmorrhage with Symptoms on the same side as the Lesion.

Saturday, October 28.

UNIVERSITY COLLEGE HOSPITAL.—Skin Department, 9.15 A.M.

LONDON POST-GRADUATE COURSE.—Bethlem Hospital: 11 A.M., Dr. Corner: Delusional Insanity, Mania of Persecution.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, October 19th, 1893.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb.	Wet Bulb.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Rainfall.	Remarks at 8.30 A.M.
Oct. 13	30·21	N.W.	46	44	92	61	42	--	Bright
,, 14	29·89	S.W.	61	60	78	65	46	·07	Raining
,, 15	30·02	S.W.	62	61	76	65	60	·09	Cloudy
,, 16	30·01	S.W.	60	59	78	67	57	--	Cloudy
,, 17	30·07	S.W.	58	57	71	61	56	·01	Overcast
,, 18	30·10	N.E.	52	51	92	60	50	·85	Bright
,, 19	30·37	S.W.	46	45	80	58	45	--	Hazy

Notes, Short Comments & Answers to Correspondents.

EDITORIAL NOTICE.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side only of the paper.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Publisher."*

We cannot undertake to return MSS. not used.

PUBLISHER'S NOTICE.

IN order to facilitate the work of reference to the volumes of THE LANCET, we have arranged to publish duplicate copies of the Index to each half-yearly volume in a form in which they may be subsequently filed or bound together. Those of our subscribers who may wish to be supplied with loose copies can obtain the same (without extra charge) on making application to the Publisher of THE LANCET.

WHAT IS A CASE OF EXTRAORDINARY DIFFICULTY

A CORRESPONDENT writes:—

"'Provided that it shall be lawful for the trustees to pay such extra fees as they shall think right to the said medical officer for his attendance and services on midwifery or surgical cases of extraordinary difficulty.' I copy the foregoing from the scheme of rules of a charity for which I am medical officer, and should be very much obliged if you would inform me whether you understand the latter part of the sentence to mean that both midwifery cases and surgical

cases must be of extraordinary difficulty, for it seems to me that in the absence of any punctuation, 'or' being put and not 'and,' an extra fee could be demanded for an ordinary midwifery case. More particularly I would ask you what cases of midwifery rank as extraordinary. I presume that every case requiring instrumental help from a medical man would come under this heading, as also cases of abortion where portions of embryo have to be removed by instruments."

*** The first question is one purely of grammatical construction on the face of which "extraordinary difficulty" applies to "midwifery" as well as to "surgical cases." The second question is one which in this case is left for the trustees to decide, who may or may not be medical men.—ED. L.

FOREIGN BODY IN THE ALIMENTARY CANAL.

To the Editors of THE LANCET.

SIRS,—The following history of the accidental swallowing of a large foreign body and its safe passage through the alimentary tract of so young a subject may be worthy of record.

A female child aged twenty-two months swallowed a nail whilst at play. Beyond a momentary lividity of the face and difficulty of respiration nothing abnormal was noticed, and the child continued to enjoy its usual health. Forty-five hours afterwards the first movement of the bowels took place, and embedded in the stool was found a French wire nail, sharply pointed, and of the following dimensions: Length, 2½ in.; diameter of head, ¼ in.; of the shank, ⅛ in. The diet was exclusively confined to bulky foods, such as suet-pudding, fish, bread &c. The patient sustained neither inconvenience nor injury from the accident.

I am, Sirs, yours faithfully,

Wimborne, Dorset, Oct. 11th, 1893. W. HERBERT FAWCETT.

IN MEMORIAM.—W. F. LUCAS.

"Ἠρὸ τῆς πατρίδος ἀπέθανον."

ANOTHER wreath is added to our fame!
Another lustre shines upon his name!
And "Lucas" lives *where all is "Light."*
Pain and all suffering gone! gone, too, the Night;
A Christian hath the battle fought and won;
The Hero died; but joy! his task was done!
Well done, brave heart! God's glorious sun
Ne'er shone upon a nobler truer one.
"Jecks," "Rabbeth," "Lucas"—an immortal three!
Have earned their crowns and Peace her victory!

Cley-next-Sea, Norfolk. W. SUMPTER, M.D.

LIFE IN EGYPT.

To the Editors of THE LANCET.

SIRS,—I shall be much obliged if you or any of your readers will kindly inform me as regards the expenses of living and house-rent in, and give a few other important particulars about, Alexandria and Cairo which may be of use to a medical man who intends practising in those places.

I remain, Sirs, yours faithfully,

Sept. 16th, 1893. M.B., M.R.C.S.

*** From inquiries made in Cairo we find that the cost of living comfortably there varies from £40 to £50 a month; though, of course, a bachelor willing to live in lodgings and at restaurants need not spend more than £25 a month. House-rent alone is about £100 a year for a flat in a good neighbourhood. Expenses in Alexandria may be taken at a little less than in Cairo. The season at the latter place is from November to April. In Alexandria there are now two English civilian practitioners, while in Cairo there are six.—ED. L.

PROGRESS IN MATERIA MEDICA.

THE following extract from a letter, to which a footnote is attached explaining that it is sent in perfectly good faith by a missionary, appears in the *Pioneer Mail* of India:—

"A physician of about a quarter of a century's experience, by name Babu Amrit Lall Kaviraj, of Indore (Malhargunge), C.I., who has had extensive practice in Bengal and Central India, claims to have, after a series of experiments, discovered antidotes for both hydrophobia and cholera. He solemnly avows that he has cured a large number of hydrophobia cases, and for the benefit of the public he gives the following prescription for hydrophobia cases: Divide a ripe plantain into three parts, and in each of these insert one rathi (1/11th part of a tola) of lion's skin, taking off the hair, and give the patient the pieces at intervals of one hour. Physicians and persons who are interested in hydrophobia cases are invited to try this cure and give their results to the public. As for the specific for cholera, anyone who wants the medicine may apply to the above-named physician, who has kindly consented to supply free of cost."

"NUISANCES."

To the Editors of THE LANCET.

SIRS,—I should be glad to know if any of your readers have ever taken legal action as medical officers of health in respect of nuisances caused by burning bricks, and if so the result of such proceedings.

I am, Sirs, yours faithfully,

Oct. 11th, 1893. M.O.H.

UNVERACIOUS AND UNNEIGHBOURLY.

Mr. P. Ward, writing from 93, Kirkgate, Wakefield, has, in our opinion, a very distinct grievance. He is in the shell-fish trade, and Mr. William Sykes, who resides at 95, Kirkgate, Wakefield, is his next-door neighbour, and (he says) "is, or want to be, an herbalist." In pursuit of this object, and in most unneighbourly disregard of its probable effect on the local shell-fish trade, Mr. Sykes has put forth the following circular:—

"*A Warning to Mussel Eaters.*—Be aware of what you are eating, and read the following lines how a lady suffered from eating mussels: Reader, a lady who has been a very great sufferer for over ten years and who has been attended by several doctors, who have been treating her for inflammation of the navel and spasms of the heart, and could not do her any good, some of whom having given her up for a bad job and said they could do her no good at all Reader, but what do you think it was that she suffered from? Lobsters! that was living in her inside. But how do you think they got there? By eating mussels and such like things, and not taking any notice of them to see if they were properly cleansed. Reader, this lady has done the same thing as this by eating mussels which have contained young lobsters, and she having swallowed them alive they have grown in her inside and bred until she was very nigh eaten up with them. And what do you think she did to get rid of them? She went to 95, Kirkgate, Wakefield, and tried this great and wonderful discovery. What do you think it did for her? It brought over 200 lobsters from her in a few days, and the greater part of those lobsters can be seen at 95, Kirkgate, Wakefield. The lady can also be seen (from whom they have been taken) three days in the week, Monday, Thursday, and Saturday, from 9 A.M. to 8 P.M. at the same address, by applying to Wm. Sykes, 95, Kirkgate, Wakefield, and she will explain things to you about them. Reader, if you suffer from such things as those, I say try this great and wonderful discovery, and do not dispair, for there is yet balm in Gilead. Note the address: William Sykes, 95, Kirkgate, Wakefield All kinds of worms and insects destroyed in a few days."

Mr. Ward desires our opinion upon the circular. While it is very difficult to suppose that such a document can require serious contradiction, we are happy to oblige him, and to attempt to restore confidence in the shell-fish trade, by stating that the phenomenon described by Mr. Sykes never could have occurred.

ARE DISEASES CONTRACTED FROM SWINE?

To the Editors of THE LANCET.

SIRS,—I should be glad if some of your readers could let me have an answer to the following queries: Is pig typhoid (Budd) similar to the human disease? Can it be contracted from the former by man? Is there any disease—of course, omitting tænia—that can be contracted by man from swine?

I am, Sirs, yours faithfully,

Oct. 10th, 1893. MEDICUS

MIRACULOUS MEDICINE.

IN an article on "Borderlanders of the Bible" in the current number of *Borderland* the writer says: "If it can be proved beyond any cavil or gainsaying that the present world is quite as full of the miraculous element as the old world was ever believed to be.... I believed that this can be proved, and will be proved, by the study of Borderland." If by "Borderland" the writer means the periodical in which he expresses his belief we quite agree with him, and we feel sure that our readers will acquiesce after perusing the remarkable advertisement which we take from that journal.

"——, D.M., Psycho-Physician, Magnetist, Medical Botanist, Electrician, &c. Every description of ailment taken in hand through the medium of correspondence. If you suffer, you can have your case considered Free of Charge, by sending full particulars, with stamped addressed envelope for reply. Medicines made specially for every case. Lessons given by letter for the development of psychic powers, &c. Astrological advice, send stamp for list.—Address, ——."

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

During the week marked copies of the following newspapers have been received:—*Madras Times, Bradford Daily Argus, Dudley Herald, Dundee Courier, South Wales Daily News, East Anglian Daily Times, Manchester Guardian, Leicester Post, Le Temps (Paris), Newcastle Chronicle, Yorkshire Herald, Northern Whig, Irish News, Cork Daily Herald, Liverpool Mercury, Scotsman, Glasgow Herald, Scottish Leader, Birmingham Post, Yorkshire Post, Bristol Mercury, Leeds Mercury, Liverpool Daily Post, Builder, Times of India, Pioneer Mail, Sunday Times, Architect, Hertfordshire Mercury, Weekly Free Press and Aberdeen Herald, Bolton Daily Chronicle, Local Government Chronicle, Reading Mercury, Morning, Mining Journal, City Press, Sanitary Record, Le Courrier de la Presse (Paris), Retford News, Local Government Journal, West Middlesex Advertiser, Surrey Advertiser, Kent Herald, Dover Express, Henley Standard, Manchester Courier, Gazette and News (Blackpool), Citizen, Liverpool Courier, Scarborough Post, Beverley Recorder, Malton Gazette, Broad Arrow, Western Chronicle, Evening News and Post, Western Mail, Sussex News, &c. &c*

Communications, Letters &c. have been received from—

A.—Dr. F. P. Atkinson, Surbiton; Dr. W. H. Aikins, Toronto; Dr. W. S. Alexander, Londonderry; Prof. Clifford Allbutt, Cambridge; Mr. J. F. G. Alexandre, Grimsby; Messrs. Allen and Hanburys, London; Messrs. Arnold and Sons, London; Aminos Syndicate, Limited, London, Managing Director of; All-World Advertising Co., Belfast, Secretary of; Antipyrin, London; A. X., London.

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D.—Dr. Thos. Dutton, London; *Dominion Medical Monthly*, Toronto, Editor of.

E.—Dr. W. R. Edwards, Beluchistan.

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Letters, each with enclosure, are also acknowledged from—

A.—Mr. J. W. Atkinson, Belfast; Assistant, London; A. X. E., London.

B.—Mr. H. T. Butlin, London; Mr. J. A. Bradbury, Wigan; Mr. T. Barron, Mexborough; Birmingham, London; Beta, London.

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X.—X., London.

Z.—Zigzag, London; Z., London.

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